

Investigations in the Field of Chemical Transformations SOV/62-59-1-23/38  
of Unsaturated and High-Molecular Compounds. Communication 8. Copolymeri-  
zation of  $\gamma$ -Silicon-Containing Vinyl Ethers and Methyl Methacrylate

butyric acid. According to the experimental data obtained the following regularities were found: on the increase of  $\gamma$ -silicon-containing vinyl ether in the reaction medium the yield of copolymers is decreased while the number of the members of vinyl ether in them is increased (Fig). Similar rules have been already observed in the copolymerization of vinyl ether and vinyl ester (Ref 3). As may be seen from it, the content of  $\gamma$ -silicon-containing vinyl ether in the copolymer does not exceed 50 mol-%. The polymerization according to radical mechanism was not observed with  $\gamma$ -silicon-containing vinyl ether. As already mentioned in reference 4, it may be assumed that in this case reaction is started by a complex radical. The latter is produced by the addition of the more active monomer of methyl methacrylate to the radical which was formed in the decomposition of the initiator. A comparison between  $\gamma$ -silicon-containing vinyl ether and the vinyl alkyl ethers demonstrated that the reactivity of vinyl ether is reduced by the presence of silicon in  $\gamma$ -position (Table 1). The results of investiga-

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tion mentioned in table 2 permit the conclusion that the substitution of ethyl groups for methyl groups reduces somewhat the yield of copolymers in the case of  $\gamma$ -silicon-containing ether. However, the composition of the copolymers is hardly affected by that. In the investigation of the copolymerization of  $\gamma$ -silicon-containing vinyl ether and methyl methacrylate it was stated that their copolymers receive new properties in the presence of silicon. There are 1 figure, 3 tables and 4 Soviet references.

ASSOCIATION: Institut organicheskoy khimii im. N. D. Zelinskogo Akademii nauk SSSR (Institute of Organic Chemistry imeni N. D. Zelinskiy of the Academy of Sciences, USSR)

SUBMITTED: May 22, 1957

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SHIKHIYEV, I.A.; SHOSTAKOVSKIY, M.F.; KAYUTENKO, I.A.

Investigations in the field of the synthesis and transformation of unsaturated silicon organic compounds. Dokl. AN Azerb. SSR 15 no.1:21-23  
' 59. (MIRA 12:3)

1. Institut organicheskoy khimii AN SSSR i Institut nefiti AN AzerSSR.  
Predstavleno akademikom AN AzerSSR Yu.G. Mamedaliyevym.  
(Silicon organic compounds)

SHIKHIYEV, I.A.; ALIYEV, M.I.; KARAYEVA, Sh.V.

Synthesis and conversion of tertiary  $\gamma$ -acetylenic alcohols  
containing silicon. Dokl.AN Azerb.SSR 15 no.12:1111-1113  
'59. (MIRA 13:4)

1. Institut neftekhimicheskikh protsessov AN AzerSSR. Pred-  
stavleno akademikom AN AzerSSR M.F.Nagiyevym.  
(Alcohols)

5 (3)

AUTHORS:

Shostakovskiy, M. F., Komarov, N. V.  
Shikhiyev, I. A.

SOV/74-28-6-4/5

TITLE:

Silanols (Silanoly)

PERIODICAL:

Uspekhi khimii, 1959, Vol 28, Nr 6, pp 741 - 771 (USSR)

ABSTRACT:

The present paper describes the methods of synthesis and the properties of silanols. Silanols are compounds containing hydroxyl groups directly bound to the silicon atom. Owing to particular affinity of the silicon atom to oxygen, there are silicon-organic compounds with one, two and three hydroxyl groups with the silicon atom. In this connection, they are classified into alkyl (aryl) silanols with the common formula  $R_3SiOH$ , silandiols  $R_2Si(OH)_2$ , and silantriols  $RSi(OH)_3$ . Of the mentioned compounds, the trialkyl (aryl) silanols are best investigated. They are highly reactive compounds and have great practical and theoretical importance. In contrast to silicon-organic alcohols, there are a number of common methods of synthesis for silanols. For some representatives of this class, there are quite special methods of synthesis peculiar to them. Of the methods of synthesis, the following were described:

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Silanols

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the hydrolysis of halogen silanes (Refs 8, 10-63), of alcoxy-silanes (Refs 25,35,64-75), of acetoxysilanes (Refs 10,76-81), of aminosilanes (Refs 10,21,82-90), the magnesium-organic synthesis (Refs 91-95), the cleavage of siloxanes (Refs 95-103), the cleavage of tetrasubstituted silanes (Refs 102,104-124), and the hydrolysis of hydride silanes (Refs 35,60,84,128-132). Besides the mentioned general methods of obtaining silanols, special publications describe many other methods which are suitable for the synthesis of compounds with a certain structure (Refs 5,24,31,102,103,111,124,133-147). The physical properties of many silanols have not yet been fully characterized (Table). For some representatives, the physical constants are contradictory. In spite of this, certain rules referring to their physico-chemical properties can be determined from the data indicated in the table of the compounds of this class (Refs 32,148-155). Trialkyl (aryl) silanols remind of tertiary alcohols as to their structure. Silandiols and silantriols have no analoga among organic compounds. Silanols are, in general, similar to the corresponding organic alcohols, but by the presence of the silicon atom their properties attain a character peculiar to them. This brings about that in many ca-

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Silanols

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ses they react differently from alcohols. Some of these reactions were considered closely and compared with the corresponding reactions of organic analogs: action of metals and lyes (Refs 8,12,31,43,60,68,81,96-103,203,205-222), dehydration of silanols (Refs 4,24,26,33,35,37,46,47,60,63,68,190,224-226), interaction with halogen silanes (Refs 11,21,128,227,230,231), action of mineral acids (Refs 31,62,228,232,233), interaction with acid anhydrides and halogen anhydrides (Refs 22,31,41,61,223,227,324,235), interaction with alcoxysilanes (Refs 21,230,236-239), reaction with vinyl ether (Refs 52,80,87-90,226,240-244), action of Fischer's reagent (Refs 169,245), interaction with isocyanates (Refs 37,51,183,246), hydration of silanols (Refs 37,247). As mentioned before, silanols are highly reactive substances which are capable of undergoing various reactions. Some of these reactions were described (Refs 37,21,42,53,81,102,139,167,169,172,206-209,223,249-264). Silanols are used in industry for the production of various resins (Refs 257-265), heat-resisting coats (Refs 203,209), bactericide substances (Ref 265), adhesives (Refs 267,268), water-repellent agents (Refs 210,268), for impregnating paper (Ref 270), as diffusion

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Silanol

SOV/74-20-6-4/5

liquids (Ref 237), for lubricating oils (Ref 237) and for many other substances. There are 1 table and 270 references, 65 of which are Soviet.

ASSOCIATION: In-t organicheskoy khimii im. N. D. Zelinskogo AN SSSR  
(Institute of Organic Chemistry imeni N. D. Zelinskiy, AS USSR)

Card 4/4



AUTHORS: Shostakovskiy, M. F., Shikhiyev, I. A., SOV/79-29-2-5/71  
Komarov, N. V.

TITLE: Synthesis and Transformations of Organosilicon Vinyl Ethers  
(Sintez i prevrashcheniya kremneorganicheskikh prostykh vinilovykh efirov)

PERIODICAL: Zhurnal obshchey khimii, 1959, Vol 29, Nr 2, pp 366-376 (USSR)

ABSTRACT: Contrarily to vinyl ethers (Ref 1) the synthesis and the properties of organosilicon vinyl ethers are not mentioned in publications at all. The present paper describes the vinyl ethers of  $\gamma$ -silicon-containing alcohols according to Favorskiy-Shostakovskiy. At the same time it must be observed that the synthesis of the silanol ethers of the  $\alpha$ - and  $\beta$ -silicon-containing alcohols did not succeed in this way. The common vinylating method, using caustic potash as well as Na and potassium silanolates, proved inadequate for the purpose. The use of alcoholates of the same reacting alcohols favors vinylation. According to the method worked out, the synthesis of the  $\gamma$ -silicon-containing vinyl ethers was carried out:

Card 1/2  $2R_3SiCH_2OH + CH \equiv CH \rightarrow R_3SiCH_2-O-CH_2SiR_3 + H_2O$ , where  $R \equiv$  alkyl.

Synthesis and Transformations of Organosilicon  
Vinyl Ethers

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The affiliation of alcohols, silanols, and organic acids to the  $\gamma$ -silicon-containing vinyl ethers takes place under the influence of acid catalysts according to the ion mechanism, in agreement with Markovnikov's rule. On their reaction with organosilicon alcohols and silanols, hitherto unknown acetals were obtained, containing silicon atoms in both alcohol radicals. The reaction of these ethers with organic acids can serve as a basis for the synthesis of a new class of organosilicon compounds, i.e. organosilicon acylates. Hydrogenation, chlorination, and hydrochlorination of the  $\gamma$ -silicon-containing vinyl ethers were investigated. There are 3 tables and 12 Soviet references.

ASSOCIATION: Institut organicheskoy khimii Akademii nauk SSSR (Institute for Organic Chemistry of the Academy of Sciences, USSR)

SUBMITTED: November 5, 1957

Card 2/2

5 (3)

AUTHORS:

Shikhiyev, I. A., Shostakovskiy, M. F., SOV/79-29-5-31/75  
Komarov, N. V. Aslanov, I. A.

TITLE:

Investigations in the Field of Synthesis and Transformations of Unsaturated Organo-germanium Compounds (Issledovaniya v oblasti sinteza i prevrashcheniy nepredel'nykh germaniyorganicheskikh sovedineniy). I. Synthesis of Mono-, Di-, and Trisubstituted Tertiary  $\gamma$ -Germanium Acetylene Alcohols (Sintez odno-, dvukh- i trekhatomnykh tretichnykh  $\gamma$ -germaniyatsetilenovykh spirtov)

PERIODICAL:

Zhurnal obshchey khimii, 1959, Vol 29, Nr 5, pp 1549-1551 (USSR)

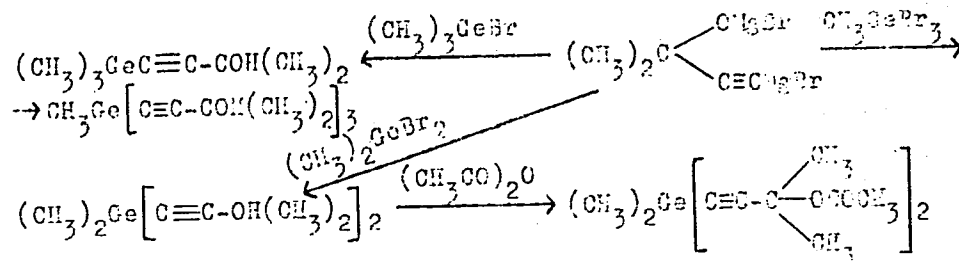
ABSTRACT:

In a previous paper (Ref 1) the reaction of di-magnesium-dibromodimethyl-ethynyl carbinol (Iotsich Reagent) with various alkyl-(aryl)-chlorosilanes was investigated. In order to explain further the reaction process with this reagent, its influence upon methyl-, dimethyl-, and trimethyl germanium bromides was investigated. The reaction was found to proceed with the formation of tertiary  $\gamma$ -germanium containing acetylene alcohols according to the following scheme:

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Investigations in the Field of Synthesis and Transformations of Unsaturated Organo-germanium Compounds. I. Synthesis of Mono-, Di-, and Trisubstituted Tertiary  $\gamma$ -Germanium Acetylene Alcohols

SOV/79-29-5-31/75



The occurrence of hydroxyl groups was confirmed by the acetic acid derivative of bis-(2-methylbutin-3-ol-2)-dimethyl germanium. Further reactions of organo-germanium alcohols and their derivatives will be described in later papers. The experimental part presents the physical data of the initial substances, the details of the synthesis, and the analysis of the compounds obtained. The authors prepared: (2-methylbutin-3-ol-2)-4-trimethyl germanium, bis-(2-methylbutin-3-ol-2)-4-dimethyl germanium, tri-(2-methylbutin-3-ol-2)-4-methyl germanium, and bis-(2-methylbutine-3-acetoxy-2)-4-dimethyl

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Investigations in the Field of Synthesis and SOV/79-29-5-31/75  
Transformations of Unsaturated Organo-germanium Compounds. I. Synthesis of  
Mono-, Di-, and Trisubstituted Tertiary  $\gamma$ -Germanium Acetylene Alcohols

germanium. There are 3 Soviet references.

SUBMITTED: November 25, 1957

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5(3)

SOV/79-29-7-7/83

AUTHORS:

Shikhiyev, I. A., Shostakovskiy, M. F., Kayutenko, L. A.

TITLE:

Investigations in the Field of the Synthesis and the Transformations of Unsaturated Organo-silicon Compounds (Issledovaniya v oblasti sinteza i prevrashcheniy nepredel'nykh kremneorganicheskikh soyedineniy).  
II. Synthesis of the Silicon Hydrocarbons of the Vinyl Acetylene Series (II. Sintez kremneuglevodorodov vinilatsetilenovogo ryada)

PERIODICAL:

Zhurnal obshchey khimii, 1959, Vol 29, Nr 7, pp 2137-2139 (USSR)

ABSTRACT:

The synthesis of acetylene alcohols (Ref 1), their hydrogenation and dehydration (Refs 2, 3) as well as the affiliation of various compounds to the triple bond (Refs 1, 4, 5) is of high theoretical and practical interest. Similar conversions of the organo-silicon acetylene alcohols were carried out for a comparative investigation of their properties. Earlier, the authors elaborated the synthesis of mono- (Ref 6), bi- (Ref 7), and trivalent (Ref 8)  $\gamma$ -silicon and  $\gamma$ -germanium substituted (Ref 9) acetylene alcohols. In the present paper the dehydration conditions of some  $\gamma$ -silicon substituted ditertiary acetylene glycols as well as the catalytic hydrogenation of the

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Investigations in the Field of the Synthesis and the SOV/79-29-7-7/83  
Transformations of Unsaturated Organo-silicon Compounds. II. Synthesis of the  
Silicon Hydrocarbons of the Vinyl Acetylene Series

silicon hydrocarbons obtained were investigated according to the  
afore mentioned scheme. Thus, the synthesis of vinyl acetylene  
silicon hydrocarbons was elaborated by the dehydration of the  
corresponding ditertiary  $\gamma$ -silicon substituted acetylene  
glycols in the presence of  $\text{KHSO}_4$ . The following compounds were  
obtained and characterized: bis-(2-methyl-butene-1-in-3)-ethyl  
silane; bis-(2-methyl butene-1-in-3)-diethyl silane;  
bis-(2-methyl butene-1-in-3)-dimethyl silane; bis-(2-methyl  
butene-1-in-3)-methylethyl silane, and bis-(2-methyl butene-1-  
in-3)-methyl propyl silane. By catalytic hydrogenation of  
bis-(2-methyl butene-1-in-3)-diethyl silane the corresponding  
saturated silicon hydrocarbon, diethyl diisoamyl silane, was

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Investigations in the Field of the Synthesis and the Transformations of Unsaturated Organo-silicon Compounds. II. Synthesis of the Silicon Hydrocarbons of the Vinyl Acetylene Series SOV/79-29-7-7/83

synthesized. The silicon hydrocarbons synthesized are more exactly characterized in the table. There are 2 tables and 9 references, 8 of which are Soviet.

ASSOCIATION: Institut organicheskoy khimii Akademii nauk SSSR i Institut neftekhimicheskikh protsessov Akademii nauk Azerbaydzhanskoy SSR (Institute of Organic Chemistry of the Academy of Sciences USSR and Institute of Petrochemical Processes of the Academy of Sciences of the Azerbaydzhanskaya SSR)

SUBMITTED: July 3, 1958

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PHASE I BOOK EXPLOITATION

SOV/4989

Shikhiyev, Ibragim Abasovich, Professor, Doctor of Chemical Sciences,  
Mikhail Fedorovich Shostakovskiy, Professor, Doctor of Chemical  
Sciences, Nikolay Vasil'yevich Komarov, Candidate of Chemical  
Sciences

Novyye, kislorodsoderzhashchiye kremneorganicheskiye soyedineniya  
(New Oxygen-Containing Silicon Organic Compounds) Baku,  
Azerneftneshr, 1960. 190 p. Errata slip inserted. 1,000 copies  
printed.

Ed. (Title page): Yu. G. Mamedaliyev, Academician of the Academy of  
Sciences Azerbaydzhanskaya SSR, Professor; Ed. of Publishing House:  
A. S. Shteyngel'.

PURPOSE: This book is intended for persons working with organosilicon  
compounds, and for students in schools of higher education.

COVERAGE: The book deals with the chemistry of organosilicon com-  
pounds, including their synthesis and conversion. It describes  
the use of organosilicon compounds in the manufacture of heat-  
resistant and electric insulating materials, anticorrosive

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New Oxygen-Containing Silicon (Cont.)

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coatings, silicon rubber, lubricants, and hydrophobic and gluing materials. The book also describes the new oxygen-containing organosilicon compounds such as organosilicon alcohols and silanols, simple vinyl ethers and their derivatives, and organosilicon acetals and acylals. The production and properties of chlorosilanes are described briefly. B. N. Dolgov, K. A. Andrianov, and A. P. Kreshkov are cited as Soviet writers on the chemistry of organosilicon compounds. References accompany each chapter.

TABLE OF CONTENTS:

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Ch. I. Alkyl (Aryl) Chlorosilanes	4
1. Production of alkyl (aryl) chlorosilanes	4
A. Organometallic synthesis of saturated alkyl (aryl) chlorosilanes containing chlorine directly at the silicon atom	4

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SHOSTAKOVSKIY, M.F.; SHIKHIYEV, I.A.; KOMAROV, N.V.

A.E. Favorskii; on the centennial of his birth. Azerb.khim.  
zhur. no.2:69-73 '60. (MIRA 14:8)  
(Favorskii, Aleksei Efgrafovich, 1860-1945)

S/079/60/030/009/005/015  
B001/B064

5.3700 2209.

AUTHORS: Shikhiyev, I. A., Aliyev, M. I., Aslanov, I. A.,  
Karayeva, Sh. V.

TITLE: Investigations in the Field of the Synthesis<sup>1</sup> and Conversion  
of Unsaturated Organosilicon Compounds. <sup>1</sup>VII. Synthesis and  
Properties of Some Secondary and Tertiary  $\gamma$ -Silicon-con-  
taining Acetylene Alcohols <sup>1</sup>

PERIODICAL: Zhurnal obshchey khimii, 1960, Vol. 30, No. 9,  
pp. 2916-2919

TEXT: In the present paper (Ref. 1), the authors describe a method of synthesizing mono-, bi-, and trivalent  $\gamma$ -silicon-containing tertiary alcohols of the acetylene series. The present investigation deals with the synthesis of some representatives of the  $\gamma$ -silicon-containing secondary and tertiary acetylene alcohols by allowing the respective organomagnesium compound of the acetylene series to react with trialkyl chlorosilanes. The presence of the hydroxyl group in the  $\gamma$ -silicon-containing acetylene alcohols was confirmed by acetylation (Ref. 2) by the scheme given (details

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Investigations in the Field of the Synthesis  
and Conversion of Unsaturated Organosilicon  
Compounds. VII. Synthesis and Properties  
of Some Secondary and Tertiary  $\gamma$ -Silicon-  
containing Acetylene Alcohols

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B001/B064

in the experimental part). The following  $\gamma$ -silicon-containing acetylene alcohols were described: 1-trimethyl silyl-3-methyl pentin-1-ol-3; 1-dimethyl ethyl silyl-3-methyl pentin-1-ol-3; 1-trimethyl silyl pentin-1-ol-3; 1-trimethyl silyl-3-methyl hexine-1-methyl-5-ol-3; 1-trimethyl silyl-3-methyl heptin-1-ol-3; 1-triethyl silyl-3-methyl heptin-1-ol-3; 1-trimethyl silyl hexin-1-ol-3. The presence of a hydroxyl group in the alcohols obtained was confirmed by the following silicon-containing acetals synthesized from them: n-butyl trimethyl silyl methyl pentine-, n-butyl dimethyl ethyl silyl methyl pentine-, n-butyl triethylsilyl methyl pentine-, n-butyl trimethyl silyl dimethyl hexine-, n-butyl trimethyl silyl methyl heptine-, n-butyl triethyl silyl methyl heptine-, and n-butyl trimethyl silyl hexine acetal. The alcohols and acetals obtained are given together with their constants in a table. There are 1 table and 2 Soviet references.

ASSOCIATION: Institut neftekhimicheskikh protsessov Akademii nauk Azerbaydzhanskoy SSR (Institute of Petroleum-chemical Processes of the Academy of Sciences Azerbaydzhanskaya SSR)

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Investigations in the Field of the Synthesis  
and Conversion of Unsaturated Organosilicon  
Compounds. VII. Synthesis and Properties  
of Some Secondary and Tertiary  $\gamma$ -Silicon-  
containing Acetylene Alcohols

S079/60/030/009/005/015  
B001/B064

SUBMITTED: September 21, 1959

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S/081/62/000/016/011/043  
B168/B186

AUTHORS: Shikhiyev, I. A., Aliyev, M. I., Guseyn-Zade, B. Kh.,  
Karayeva, Sh. V.

TITLE: Synthesis of acetylene alcohols containing  $\gamma$ -silicohydride  
and their dehydrocondensation by dimethylphenylsilanol

PERIODICAL: Referativnyy zhurnal. Khimiya, no. 16, 1962, 235, abstract  
16Zh271 (Azerb. khim. zh., no. 3, 1961, 67-70 [summary in  
Azerb.])

TEXT: Production of  $RR'C(OH)C \equiv CSiHR_2$  (I, where  $R = CH_3, C_2H_5$ ;  
 $R' = CH_3, C_2H_5, tert-C_4H_9$ ;  $R'' = CH_3, C_2H_5$ ) by the reaction of  
 $RR'C(OMgBr)C \equiv C MgBr$  with  $R_2''SiHCl$  (II) is described. The reaction of I  
with  $C_6H_5(CH_3)_2SiOH$  (III) produces  $RR'C(OH)C \equiv C Si(R_2'')OSi(CH_3)_2C_6H_5$  (IV)  
with liberation of  $H_2$ . The presence of an OH group in I is proved by  
acetalization and by the fact that the corresponding siloxy derivatives are

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Synthesis of acetylene alcohols...

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produced in accordance with the formula:  $I + CH_2 = CHOC_4H_9$  (V)  
 $\rightarrow CH_3CH(OC_4H_9)OC(RR')C \equiv CSiHR_2''$  (VI). 0.2 mole II ( $R_2'' = CH_3$  and  $C_2H_5$ )  
 is gradually added, during cooling, to Iotsich's reagent (consisting of  
 0.4 mole  $C_2H_5Br$ , 0.4 mole Mg and 0.2 mole methyl-tert-butylacetylenyl-  
 carbinol); after 12 hr this mixture is heated for 6 hr, after 4 hr ( $20^\circ C$ )  
 it is decomposed with dilute HCl and I ( $R = CH_3$ ,  $R' = \text{tert-}C_4H_9$ ,  
 $R_2'' = CH_3$  and  $C_2H_5$ ) (Ia) (here and henceforth yield in %, boiling point in  
 $^\circ C/mm$ ,  $n_D^{20}$ ,  $d_4^{20}$  will be given for isolated substances), 26.3, 69/2,  
 1.4603, 0.8768, is isolated from the ester layer. 0.01 g  $ZnCl_2$  is added to  
 a mixture of 0.05 mole Ia and 0.05 mole III in  $C_6H_6$ ; when evolution of  $H_2$   
 has ceased the  $C_6H_6$  is driven off and IV ( $R = CH_3$ ,  $R' = \text{tert-}C_4H_9$ ,  
 $R_2'' = CH_3$  and  $C_2H_5$ ), 21.55, 106/0.18, 1.5124, 0.9842, is isolated from the  
 residue. 0.2 ml 33 % HCl is added to a mixture of 0.03 mole I  
 ( $R = R' = CH_3$ ,  $R_2'' = CH_3$  and  $C_2H_5$ ) and 0.03 mole V; this is heated for  
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Synthesis of acetylene alcohols...

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30 min at 70°C and neutralized after 12 hr with calcined  $K_2CO_3$ , and VI  
( $R = R' = CH_3$ ,  $R_2'' = CH_3$ ,  $C_2H_5$ ), 26.04, 119/4, 1.4422, 0.8725, is  
isolated from it. Other representatives of this class of compound are  
produced in a similar manner. [Abstracter's note: Complete translation.]

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158220

S/081/62/000/018/056/059  
B168/B186

AUTHORS:

Shikhiyev, I. A., Aliyev, M. I., Sadykhzade, S. I., Shchegol',  
Sh. S., Fatliyev, S. B., Akhundova, G. Yu., Krasnokutskiy,  
V. P., Guseynova, M. A., Mukharamova, Kh. F., Kurbanaliyeva,  
T. Kh., Nikolayeva, L.

TITLE:

Synthesis and use of silico derivatives of naphthenic acids  
in the production of divinylstyrene rubber

PERIODICAL:

Referativnyy zhurnal. Khimiya, no. 18, 1962, 559, abstract  
18P485 (Azerb. khim. zh., no. 5, 1961, 65 - 68 [summary in  
Azerb.] )

TEXT: Dimethyldichlorosilane reacting with naphthenic acids in the presence  
of triethylamine produces dimethyldicarboxy-bis-cycloalkylsilane  
 $(CH_3)_2Si(COOC_{10}H_{20})_2$ . The product was used as filler for butadienestyrene  
rubber instead of lubricating oil 18. The Defoe number of the raw buta-  
dienestyrene rubber was 2000, thermal plastification time 40 min, Defoe  
number of the plasticized butadienestyrene rubber 1100, tensile strength  
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Synthesis and use of ...

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B168/B186

250 kg/cm<sup>2</sup>, elasticity 31%, relative elongation 522% and permanent elongation 16%. [Abstracter's note: Complete translation.]

✓B

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85477

S/079/61/031/001/004/025  
B001/B066

5.3700

2209

AUTHORS:

Shikhiyev, I. A., Aliyev, M. I., Aslanov, I. A., and  
Garayeva, Sh. V.

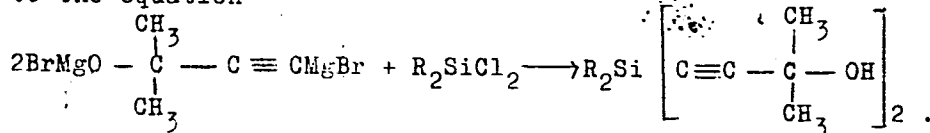
TITLE:

Studies in the Field of the Synthesis and Conversions of  
Unsaturated Organosilicon Compounds. VIII. Synthesis and  
Properties of Some Ditertiary  $\gamma$ -Silicon-containing Acetylene  
Glycols

PERIODICAL:

Zhurnal obshchey khimii, 1961, Vol. 31, No. 1, pp. 35 - 38

TEXT: In Refs. 1 and 2, the authors studied the reaction of dimagnesium  
bromo dimethyl-ethynyl carbinol with dialkyl-(aryl)-dichloro silanes in the  
presence of catalytic amounts of copper- and mercury chlorides according  
to the equation



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Studies in the Field of the Synthesis and  
Conversions of Unsaturated Organosilicon Com-  
pounds. VIII. Synthesis and Properties of Some  
Ditertiary  $\gamma$ -Silicon-containing Acetylene  
Glycols

S/079/61/031/001/004/025  
B001/B066

The presence of two hydroxyl groups in the resultant ditertiary,  $\gamma$ -silicon-containing acetylene glycols was confirmed by their conversion to the corresponding acetyl derivatives. The present paper describes the synthesis of some other branched ditertiary  $\gamma$ -silicon-containing acetylene glycols, the structure of which was also confirmed by conversion to the corresponding acetyl derivatives (Ref. 3) (Table). The following six new compounds of ditertiary,  $\gamma$ -silicon-containing acetylene glycols were synthesized: bis-(3-methyl-pentin-1-ol-3)-dimethyl silane, bis-(3-methyl-pentin-1-ol-3)-methyl-ethyl silane, bis-(3-methyl-pentin-1-ol-3)-methyl-propyl silane, bis-(3,5-dimethyl-hexin-1-ol-3)-dimethyl silane, bis-(3-methyl-heptin-1-ol-3)-dimethyl silane, bis-(3-methyl-heptin-1-ol-3)-diethyl silane. The presence of two hydroxyl groups in ditertiary,  $\gamma$ -silicon-containing acetylene glycols was confirmed by the following new acetyl derivatives obtained from them: bis-(3-methyl-propyl-1-acetoxy-3)-dimethyl silane, bis-(3-methyl-pentine-1-acetoxy-3)-methyl-propyl silane, bis-(3,5-dimethyl-hexine-1-acetoxy-3)-dimethyl silane, bis-

Card 2/3

88477

Studies in the Field of the Synthesis and Conversions of Unsaturated Organosilicon Compounds. VIII. Synthesis and Properties of Some Ditertiary  $\gamma$ -Silicon-containing Acetylene Glycols

S/079/61/031/001/004/025  
B001/B066

(3-methyl-heptine-1-acetoxy-3)-dimethyl silane, and bis-(3-methyl-heptine-1-acetoxy-3)-diethyl silane. There are 1 table and 3 Soviet references.

ASSOCIATION: Institut neftekhimicheskikh protsessov Akademii nauk Azerbaydzhanskoy SSR (Institute of Petrochemical Processes of the Academy of Sciences Azerbaydzhanskaya SSR)

SUBMITTED: February 15, 1960

Card 3/3

30187

S/079/61/031/011/008/015  
D228/D305

5.3700

AUTHORS: Shikhiyev, I. A., Aslanov, I. A., and Yusufov, B. G.

TITLE: Synthesis and conversion of primary and secondary monoatomic acetyl- $\gamma$ -germanium alcohols

PERIODICAL: Zhurnal obshchey khimii, v. 31, no. 11, 1961, 3647-3648

TEXT: The authors give the first details of the synthesis and certain properties: 1-triethylgermanopropin-1-ol-3 ---  $\text{Et}_3\text{GeC}\equiv\text{CMeO}$  (I); 1-triethylgermanohexin-1-ol-3 ---  $\text{Et}_3\text{GeC}\equiv\text{CCHOHPr}$  (II); n-butyltriethylpropylgermanium acetal ---  $\text{MeCH}(\text{OBuOCH}_2)\text{C}\equiv\text{CGeEt}_3$  (III); and n-butyltriethylhexylgermanium acetal ---  $\text{MeCH}(\text{OBu})\text{O}(\text{Pr})\text{CHG}\equiv\text{CGeEt}_3$  (IV). In previous research, I. A. Shikhiyev, M. F. Shostakovskiy, I. A. Aslanov, and N. V. Komapov (Ref. 1: Zh. obshch. khimii, 29, 1549, 1959; Ref. 2: Usp. khim., 27, 1504, 1958) developed a method for preparing mono-, duo- and triatomic acetyl- $\gamma$ -germanium alcohols and proved the presence of

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30187

4

Synthesis and conversion...

S/079/61/031/011/008/015  
D228/D305

hydroxyl groups in these compounds by their conversion to the corresponding acetals. The synthesis of I and II entails the reaction of propinol with the Grignard reagent; the mixing of the solution for 3 hr. as it is cooled to  $-5^{\circ}$ ; the addition of triethylgermanium chloride; the solution of the residue after about 8 ~ 12 hr. in water and dil. HCl; the removal of the ether layer; and the double multiple distillation of the remaining solution when the desired alcohols boil over at  $107^{\circ}$  ~  $108^{\circ}$  and  $110^{\circ}$  ~  $111^{\circ}$  respectively. III and IV are prepared by stirring a mixture of I and II with vinylbutyl ether and HCl which is then heated for 1 hr. at  $35^{\circ}$  ~  $95^{\circ}$  and allowed to stand overnight. After neutralization and removal of the ether, the acetals are obtained by double multiple distillation, their respective boiling-points being  $146^{\circ}$  ~  $148^{\circ}$  and  $152^{\circ}$ . There are 1 table and 2 Soviet bloc references.

SUBMITTED: December 27, 1960

Card 2/2



30188

S/079/61/031/011/009/015  
D223/D305

53700

AUTHOR:

Shikhiyev, I. A., Aliyev, M. I., Garayeva, Sh. V., and  
Guseynzade, B. M.

TITLE:

Synthesis of branched organosilicoorganic acetyl alcohols  
and glycols

PERIODICAL:

Zhurnal obshchey khimii, v. 31, no. 11, 1961, 3649-3652

TEXT:

The authors give the first description of the synthesis of:  
5-trimethylsilyl-3-ethylpentyn-4-ol-3  $\rightarrow$   $\text{MeCH}_2\text{C}(\text{Et})\text{OHC}(\text{CSiMe}_3)$  (I);  
5-trimethylsilyl-2,2,3-trimethylpentyn-4-ol-3  $\rightarrow$   $\text{Me}_3\text{CC}(\text{Me})\text{OHC}(\text{CSiMe}_3)$  (II);  
n-butyltrimethylsilylethylpentyn-4-ol-3  $\rightarrow$   $\text{MeC}(\text{OBu})\text{OHC}(\text{Et}_2)\text{C}(\text{CSiMe}_3)$  (III);  
n-butyltrimethylsilyltrimethylpentyn-4-ol-3  $\rightarrow$   $\text{MeC}(\text{OBu})\text{OHC}(\text{Me})(\text{CMe}_3)\text{C}(\text{CSiMe}_3)$  (IV);  
bis-(3-ethylpentyn-1-ol-3)-dimethylsilane  $\rightarrow$   $\left[ \text{MeCH}_2\text{C}(\text{Et})\text{OHC}(\text{C}) \right]_2\text{SiMe}_2$  (V);  
bis-(5-trimethylsilyl-3-ethylpentyn-4-ol-3)-dimethylsilane  $\rightarrow$   $\left[ \text{MeCH}_2\text{C}(\text{Et})\text{OHC}(\text{CSiMe}_3) \right]_2\text{SiMe}_2$  (VI).

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30183

S/079/61/031/011/009/015  
D228/D305

Synthesis of branched...

2,2,3-trimethylpentyn-4-ol-3)-dimethylsilane  $\sim [M_3CC(M_3)OHC]_2SiMe_2$  (VI); and bis-(3-ethylpentyn-1-acetoxy-3)-dimethylsilane  $\sim [MeCH_2C(Et)(OCOMe)C]_2SiMe_2$  (VII). Their work is a continuation of previous research by I. A. Shikhiyev, M. F. Shostakovskiy, N. V. Komarov, M. I. Aliyev, I. A. Aslanov and Sh. V. Garayeva (Ref. 1: Novyye kislorodsoderzhashchiye kremneorganicheskiye soyedineniya (New Oxygen-Containing Silicoorganic Compounds). Baku, 1960; Ref. 2: Zh. obshch. khimii, 30, 2916, 1960), in which it was shown that silicoorganic acetyl alcohols and glycols are formed through the reaction of trialkyl(aryl)chlorosilanes with dimethylacetylcarbinylmagnesium bromide in the presence of a  $CuCl$  and  $HgCl_2$  catalyst. I. A. Shikhiyev, N. V. Komarov and I. A. Aslanov (Ref. 4: Uslo. Khim., 27, 1504, 1958) also established the structure of these compounds by hydrogenation and acetalization. The method of T. A. Favorskaya and I. A. Favorskaya (Ref. 5: Zh. obshch. khimii, 10, 451, 1940) was used to prepare I. This entails the stirring and cooling of a solution of the Grignard reagent and diethylacetylcarbinol for 3 hr; the addition of trimethylchlorosilane, followed by the heating of

Card 2/3

30188

Synthesis of branched...

S/079/61/031/011/000/018  
D228/D305

the solution and its treatment with dil. HCl; the separation of the ether and water layers; and distilling-off the required alcohol at 69 - 70°. V was obtained by gradually adding dimethyldichlorosilane to a solution of the Grignard reagent and diethylacetylcarbinol, which was first cooled and stirred for 2 hr. The solution was allowed to stand overnight, after which dil. HCl was added, and the ether and water layers were then separated; the desired compound boils over at 128 - 130° during double multiple distillation. II and VI were synthesized by the same procedure adopted for I and V. The authors consider the presence of hydroxyl groups in alcohols I and II and glycol V to be proved by the respective conversion of these compounds into acetals III and IV and acetal VII. In the case of III (b.p. 95 - 96°) and IV (b.p. 95 - 97°), the conversion was effected with vinylbutyl ether and HCl, while VII (b.p. 148 - 149°) was obtained from V by means of acetic anhydride. There are 1 table and 5 Soviet bloc references.

Card 3/3

5.3700

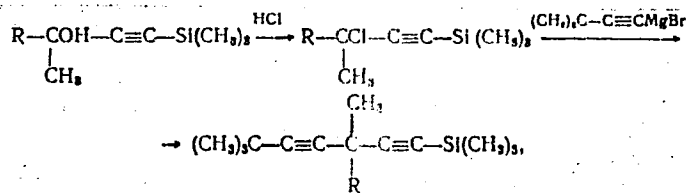
27262  
S/020/61/139/005/015/021  
B103/B217

AUTHORS: Shikhiyev, I. A., Aliyev, M. I., and Guseynzade, B. M.

TITLE: Studies of synthesis and conversions of unsaturated organosilicon compounds. Synthesis of branched silicon hydrocarbons of the diacetylene series

PERIODICAL: Akademiya nauk SSSR. Doklady, v. 139, no. 5, 1961, 1138-1140

TEXT: The authors continue their studies in the field mentioned in the title, and describe a new method of synthesizing the initially mentioned compounds on the basis of halogen derivatives of organosilicon acetylene alcohols and of tert-butyl acetylene according to the enclosed scheme,



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27262  
S/020/61/139/005/015/021  
B103/B217

Studies of synthesis and conversions ...

where R =  $\text{CH}_3$ ;  $\text{C}_2\text{H}_5$ ; and tert- $\text{C}_4\text{H}_9$ . The existence of two triple bonds in the diacetylene silicon hydrocarbons obtained was proved by hydrogenation of the latter up to saturation. The authors synthesized and characterized for the first time: the three representatives of branched diacetylene silicon hydrocarbons whose constants are given in Table 1. A three-necked flask with reflux cooler served for synthesis. 5-trimethyl silyl-3-methylpentyn-4-ol-3 through which gaseous HCl was bubbled was used for the synthesis of 5-trimethyl dilyl-3-methylpentyne-4-chlorine-3. Synthesis of 1-trimethyl silyl-3,6,6-trimethyl-3-ethyl heptadiene-1,4: Tert-butyl acetylene (8.5 g) in 20 ml ether was added to a Grignard reagent during 25 min under continuous stirring and cooling. After 40 hr standing, the content of the flask was heated on a water bath up to  $35^\circ\text{C}$ , and kept at this temperature until the ethane separation ceased. 1 g  $\text{Cu}_2\text{Cl}_2$  and 0.5 g  $\text{HgCl}_2$  were added as catalyst to the resulting complex magnesium bromine tert-butyl acetylene. After 0.5 hr stirring, the mixture was cooled down to  $-2^\circ\text{C}$ , and 21.68 g acetylene chloride added. Then, the mixture was stirred during 58 hr at room temperature, heated during 6 hr, and decomposed by diluted HCl. An ether solution and the extract were dried over calcined  $\text{Na}_2\text{SO}_4$ . After

Card 2/4

Studies of synthesis and conversions ...

27262  
S/020/61/139/005/015/021  
B103/B217

distilling off the ether, 14 g of the final product was isolated by double distillation. Two further representatives of the said compounds were obtained in similar manner. The authors thank I. F. Zhukova for assisting in the hydrogenation of diacetylene silicon hydrocarbon at the laboratory of Professor L. Kh. Freydlin. Raney-Ni (0.2 g) in 5 ml methanol was used. The mixture was saturated with hydrogen, and then 0.123 silicon hydrocarbon introduced. Altogether 43.6 ml hydrogen was absorbed. 47 ml hydrogen is theoretically necessary for complete hydrogenation of two triple bonds. There are 1 table and 3 Soviet-bloc references.

ASSOCIATION: Institut neftekhimicheskikh protsessov Akademii nauk AzerbSSR (Institute of Petrochemical Processes of the Academy of Sciences of the Azerbaydzhanskaya SSR)

PRESENTED: January 16, 1961 by B. A. Arbuzov, Academician

SUBMITTED: January 11, 1961

Card 3/4

S/079/62/032/005/006/009  
D204/D307

AUTHORS: Shikhiyev, I.A., Aliyev, M.I., and Guseynzade, B.Kh.

TITLE: Studies of the syntheses and transformation of oxygen-containing organosilicon compounds. XI. Synthesis of symmetrical organosilicon trichloroacetals

PERIODICAL: Zhurnal obshchey khimii, v. 32, no. 5, 1962, 1646-1647

TEXT:  $\text{CCl}_3\text{CH}(\text{OSiMe}_3)_2$  (I) was prepared in 18.1 % yield from chloral hydrate (0.22 moles) and  $\text{Me}_3\text{SiCl}$  (0.4 moles), in ether/ $\text{Et}_3\text{N}$ , at room temperature, over 1 hr.  $\text{CCl}_3\text{CH} / \text{OSiEt}_3 / 2$  (II) was synthesized by an analogous reaction between chloral hydrate and  $\text{Et}_3\text{SiCl}$ ;  $\text{Et}_3\text{SiOSiEt}_3$  and  $\text{Et}_3\text{SiOCHOCHOSiEt}_3$  (III) were also present in the reaction mixture. The structure of II was demonstrated by synthesizing it, in 17.4 % yield, from chloral hydrate (0.1 mole), which had been refluxed with dry benzene separating the water formed, and

Card 1/2

Studies of the syntheses and ...

S/079/62/032/005/006/009  
D204/D307

$\text{Et}_3\text{SiOH}$  (0.03 moles), in presence of  $\text{HCl}$  (33 %, 2 drops), on heating to  $80 - 82^\circ\text{C}$ . The mixture was then allowed to stand overnight, was treated with 1 drop of  $\text{HCl}$ , heated for a further 2 hrs., neutralized with  $\text{KOH}$  and distilled under vacuum. A number of acetylenic organosilicon acetals was prepared by the latter method, whose properties shall be described in future publications. Compound II decomposed into  $\text{Et}_3\text{SiOSiEt}_3$  and III on repeated distillation. Compounds I, II and III are new.

ASSOCIATION: Institut neftekhimicheskikh protsessov Akademii nauk Azerbaydzhanskoy SSR (Institute of Petro-Chemical Processes of the Academy of Sciences of the Azerbaydzhan SSR)

SUBMITTED: May 3, 1961

Card 2/2



SHIKHIYEV, I.A.; ALIYEV, M.I.; ISRAFILOVA, S.Z.

Synthesis and conversions of organophosphorus compounds. Part 2:  
Synthesis of some derivatives of methylcyclohexylphosphinic  
acid. Zhur.ob.khim. 32 no.8:2686-2688 Ag '62. (MIRA 15:9)

1. Institut neftekhimicheskikh protsessov AN Azerbaydzhanskoy SSR.  
(Phosphinic acid)

SHIKHIYEV, I.A.; ASLANOV, I.A.; YUSUFOV, B.G.

Synthesis and conversions of oxygen-containing unsaturated organogermanium compounds. Part 15: Synthesis of mono- and diatomic tertiary  $\gamma$ -germanium acetylenic alcohols and some of their derivatives. Zhur.ob.khim. 32 no.10:3148-3151 0 '62. (MIRA 15:11)

(Alcohols)  
(Germanium organic compounds)

43310

S/079/62/032/011/005/012  
D204/D307

53700

AUTHORS: Shikhiyev, I.A., Guseynzade, B.M., and Aliyev, M.I.

TITLE: Investigations of the synthesis and transformations of oxygen-containing organic and organosilicon compounds. XIV. Organic and organosilicon derivatives of chloral hydrate

PERIODICAL: Zhurnal obshchey khimii, v. 32, no. 11, 1962, 3630 - 3633

TEXT: The present study was aimed at the consideration of the interactions of chloral hydrate (A) with organic and organosilicon tertiary acetylenic alcohols and simple alkyl vinyl ethers. The products consisted of the corresponding symmetrical trichloroacetals or unsaturated simple ethers of A, depending on the conditions and structures of the reagents concerned. Thus ethoxyethyl-hydroxytrichloroethyl ether of 2,2,2-trichloroethanediol-1,1 (I) was prepared by treating a solution of A in benzene with ethyl vinyl ether cooling, adding a small drop of 33 % HCl, heating to 60-70°C for 1 hr., leaving overnight, neutralization and distillation. Ethoxy-Card 1/2

Investigations of the synthesis ...

S/079/62/032/011/005/012  
D204/D307

ethyl-triethylsiloxyltrichloroethyl ether of 2,2,2-trichloroethane-  
diol-1,1 (II) was synthesized (to show the presence of an OH group  
in I), by treating a solution of I in pyridine with triethylchloro-  
silane, heating to 50 - 60°C for 1 hr., filtering and vacuum distil-  
ling the filtrate. Trimethylsilyl-(dimethylpropynyl) ether of 2,2,2-  
trichloroethanediol-1,1 (V) was analogously prepared from hydroxy-  
dimethylpropynyl ether of 2,2,2-trichloroethanediol-1,1 (IV) with  
trimethylchlorosilane. Bis-butoxyethyl ether of 2,2,2-trichloro-  
ethanediol-1,1 (III) was obtained by heating a benzene solution of  
A with butyl vinyl ether, cooling, adding 1 drop of 33 % HCl, heat-  
ing to 60-70°C for 1 hr., neutralizing and distilling in vacuum.  
Compound IV and also butoxyethyl-dimethylpropynyl, - bis(trimethyl-  
silyl) dimethylpropynyl, - hydroxy-methyl test.- butyltrimethyl-si-  
lylpropynyl, - and bis-dimethylvinylpropynyl - ethers of 2,2,2-tri-  
chloroethanediol-1,1 were prepared by analogous reactions. There is  
1 table.

ASSOCIATION: Institut neftekhimicheskikh protsessov Akademii nauk  
Azerbaydzhanskoy SSR (Institute of Petrochemical Pro-  
cesses of the Academy of Sciences Azerb. SSR)

SUBMITTED: December 11, 1961  
Card 2/2

SHIKHIYEV, I.A.; ALIYEV, M.I.; MUKHARAMOVA, Kh.F.; ISRAYELIAN, D.R.

Synthesis of alkyl chlorosilanes based on the pentane-  
amylene fraction. Azerb. khim. zhur. no.2:21-24 '63.  
(MIRA 16:8)

ACCESSION NR: AP4022010

S/0249/63/019/012/0015/0017

AUTHOR: Shikhiyev, I. A.; Aliyev, M. I.; Zaynalov, B. K.;  
Israyelyan, D. R.; Mukharamova, Kh. F.

TITLE: Synthesis of vinyl esters from commercial fractions of  
C<sub>5</sub> - C<sub>6</sub> fatty acids and acetylene

SOURCE: AN AzerbSSR. Doklady\*, v. 19, no. 12, 1963, 15-17

TOPIC TAGS: vinyl ester, C<sub>5</sub> fatty acid, C<sub>6</sub> fatty acid, activated  
carbon

ABSTRACT: The purpose of the present investigation was to find an industrial application for the fatty acids of the C<sub>5</sub> - C<sub>6</sub> fraction obtained by direct oxidation of the paraffin hydrocarbons. A commercial fraction of fatty acids (boiling point of 180—200C) was reacted with acetylene, using activated AG carbon impregnated with salts of the same acids as catalyst. The equipment consisted of a reactor, a coil vaporizer, and five condensers, two of which were cooled with dry ice. The experiments were carried out at a acetylene:acid ratio of 9:1. The temperature of the catalyst was 245—250C, the temperature in the coil vaporizer for fatty acids was 220—225C, the rate

Card 1/2

ACCESSION NR: AP4022010

of fatty acid feed was 30 cm<sup>3</sup>/hour, and the acetylene rate was 3.3—3.5 liter/min. The acetylene was mixed with the vapors of fatty acids before entering the reaction chamber. An 81% yield of the catalyzate was obtained, with the noncondensed vapors being discharged into the atmosphere. Five fractions were isolated from the catalyzate within a boiling range of 85—180C (75.9% were vinyl esters, the bromine number of which ranged from 125.7 to 84.44). The 135—155C fraction was the largest, representing a 31.3% yield on the basis of the fatty acids used in the reaction. It had a molecular weight of 131.4 and a bromine number of 112.3, as against a theoretical bromine number of 118.4 for vinyl ester. Orig. art. has: 1 table.

ASSOCIATION: Im. Yu. G. Mamedaliyeva INChP

SUBMITTED: 12Oct63

ATD PRESS: 3045

ENCL: 00

SUB CODE: OC

NO REF SOV: 010

OTHER: 000

Card 2/2

S/079/63/033/002/003/009  
D204/D307

AUTHORS: Shikhiyev, I.A. and Aslanov, I.A.

TITLE: Studies of the synthesis and conversions of unsaturated organosilicon compounds. XVI. Synthesis and properties of some secondary  $\gamma$ -silicon-containing acetylenic alcohols

PERIODICAL: Zhurnal obshchey khimii, v. 33, no. 2, 1963, 377 - 379

TEXT: A continuation of earlier work (Novyye kislород-soderzhashchiye kremneorganicheskiye soyedineniya [New oxygen-containing organosilicon compounds], Baku (1960)). 1-Dimethylethylsilylhexyn-1-ol-3 (I) was prepared by reacting  $\text{EtMgBr}$  with propylethynylcarbinol in the cold ( $\sim 0^\circ\text{C}$ ), stirring for 5 hrs at room temperature, and treating with  $\text{EtMe}_2\text{SiCl}$ . The complex was then decomposed with  $\text{HCl}$ . Compounds  $\text{R}_3\text{SiC} \equiv \text{C-CHOH-C}_3\text{H}_7$  (where  $\text{R}_3 = \text{CH}_3$ ,  $(\text{C}_2\text{H}_5)_2$  (II) or  $(\text{C}_2\text{H}_5)_3$  (III)) and  $\text{R}_2\text{SiHC} \equiv \text{C-CHOH-C}_3\text{H}_7$  (where  $\text{R}_2 = (\text{CH}_3)_2$  (IV);  $\text{R}_2 = \text{CH}_3$ ,

Card 1/2



Studies of the synthesis ...

S/079/63/033/002/003/009  
D204/D307

$C_2H_5$  (V);  $R_2 = (C_2H_5)_2$  (VI);  $R_2 = CH_3, C_3H_7$  (VII);  $R_2 = (iso-C_3H_7)_2$  (VIII);  $R_2 = (C_3H_7)_2$  (IX)) were obtained by an analogous procedure, using  $R_2SiHCl$  for compounds IV - IX. To demonstrate the presence of the OH group, *n*-butyldimethylethylsilylhexyne acetal (X) was prepared from I and vinylbutyl alcohol in the presence of some 33 % HCl. The temperature was allowed to rise to 55°C and was then held at 90°C for 30 min. Similar acetals were prepared from the other alcohols. All these compounds are new. There is 1 table.

SUBMITTED:

November 5, 1961 .

Card 2/2

SHIKHIYEV, I.A.; VATANKHA, A.A.; RZAYEVA, S.A.; GUSEYNZADE, B.M.

Synthesis and transformations of oxygen-containing organic and  
organosilicon compounds. Azerb. khim. zhur. no.5:27-30 '64.  
(MIRA 18:3)

L 34195-65 EWT(m)/EPF(c)/EWP(j)/T Pc-4/Pr-4 RM  
 ACCESSION NR: AP5007523 S/0316/64/000/006/0033/0037

28  
B

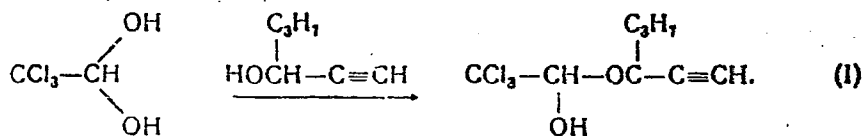
AUTHOR: Shikhiyev, I. A.; Verdiyeva, S. Sh.; Aslanov, I. A.

TITLE: Studies in the field of the synthesis and conversions of oxygen-containing organic and organosilicon compounds. Synthesis of organic and organosilicon trichloroacetals and incomplete acetylenic ethers of chloral hydrate

SOURCE: Azerbaydzanskiy khimicheskiy zhurnal, no. 6, 1964, 33-37

TOPIC TAGS: silicoorganic compound, chloral hydrate ether, acetylenic ether, trichloroacetal, organosilicon trichloroacetal

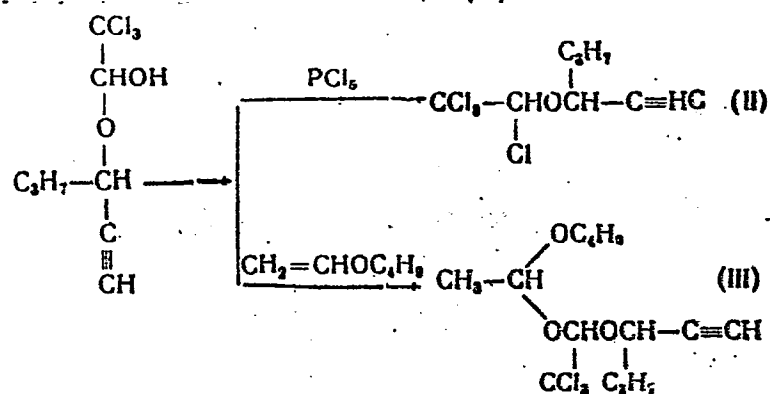
ABSTRACT: The incomplete ether of chloral hydrate (I) and an acetylenic  $\alpha$ -chloro ether (II) were obtained and characterized for the first time, and the presence of a hydroxyl group in (I) was established by the formation of the corresponding acetal (III):



Card 1/4

L 34195-65

ACCESSION NR: AP5007523

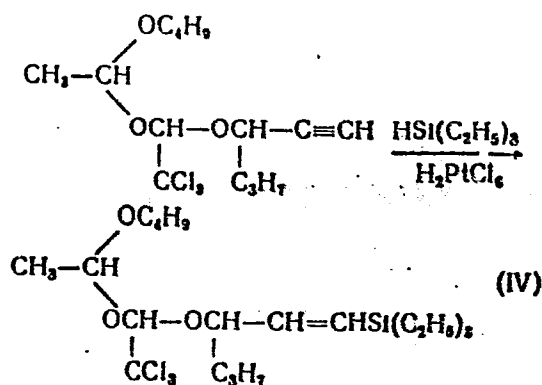


Card 2/4

L 34195-65

ACCESSION NR: AP5007523

The presence of a triple bond in acetal (III) was established by the formation of the corresponding organosilicon acetal (IV).



The experimental procedures employed are fully described, and the physicochemical constants of the products obtained are tabulated. Orig. art. has: 1 table and 12 formulas.

Card 3/4

L 34195-65

ACCESSION NR: AP5007523

6

ASSOCIATION: None

SUBMITTED: 00

ENCL: 00

SUB CODE: 0C

NO REF SOV: 004

OTHER: 000

Card 4/4

L 42135-65 ENG(j)/EWT(m)/EPF(c)/ENP(j)/T/ENP(t)/ENP(b)/EWA(h)/EWA(1) Po-4/  
Pr-4/Peb LJP(c) JD/RM

ACCESSION NR: AP5007719

S/0249/64/020/011/0013/0017

AUTHORS: Shikhiyev, I. A.; Guseynzade, B. M.; Abdullayev, N. D.

TITLE: Investigations of gamma synthesis and conversion of unsaturated oxygen-bearing silicon and germanium organic compounds

SOURCE: AN AzerbSSR Doklady, v. 20, no. 11, 1964, 13-17

TOPIC TAGS: silicon organic polymer, germanium compound, organic derivative, acetylene alcohol

ABSTRACT: This is a continuation of the authors' work in the field of hetero-organic derivatives of acetylene. The present paper concerns the gamma synthesis and conversion of unsaturated oxygen-bearing silicon- and germanium-organic compounds. A method has been developed for producing silicon- and germanium-organic monatomic diacetylene alcohols from diatomic silicon-organic alcohol, and also by reaction between the Iotsich group of some tertiary acetylene alcohols with  $\gamma$ -silicon- and germanium-organic chlorides. The presence of the hydroxyl group in silicon-organic monatomic diacetylene alcohols is demonstrated by dehydration and by cyanethylation. The investigations yielded six different representatives of silicon- and germanium-organic monatomic diacetylene alcohols and their derivatives. These are described for the first time, and their constants are tabulated in the Card 1/2

L 42135-65

ACCESSION NR: AP5007719

article. Orig. art. has: 1 table.

ASSOCIATION: INKhP im. Yu. G. Mamedaliyeva (INKhP)

SUBMITTED: 06Dec63

ENCL: 00

SUB CODE: CC, CC

NO REF SOV: 004

OTHER: 000

Card *ce*  
2/2



ACCESSION NR: AP4018053

S/0079/64/034/002/0394/0396

AUTHOR: Shikhiyev, I. A.; Guseynzade, B. M.; Mekhmandarova, N. T.; Aslanov, I. A.

TITLE: Research in the area of synthesis and conversion of unsaturated silicon germanium organic compounds

17. Synthesis and some conversions of silicon and germanium organic alcohols of the diacetylene series

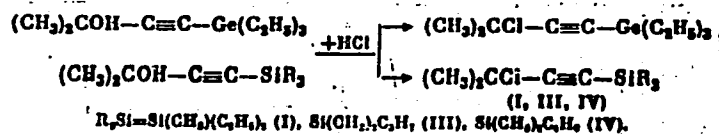
SOURCE: Zhurnal obshchey khimii, v. 34, no. 2, 1964, 394-396

TOPIC TAGS: silicon germanium, synthesis unsaturated silicon germanium, conversion unsaturated silicon germanium, organic alcohol, diacetylene series organic alcohol

ABSTRACT: The synthesis of silicon and germanium organic acetylene chlorides is studied by means of a reaction of gaseous hydrogen chloride with corresponding acetylene alcohols according to:

Card 1/4

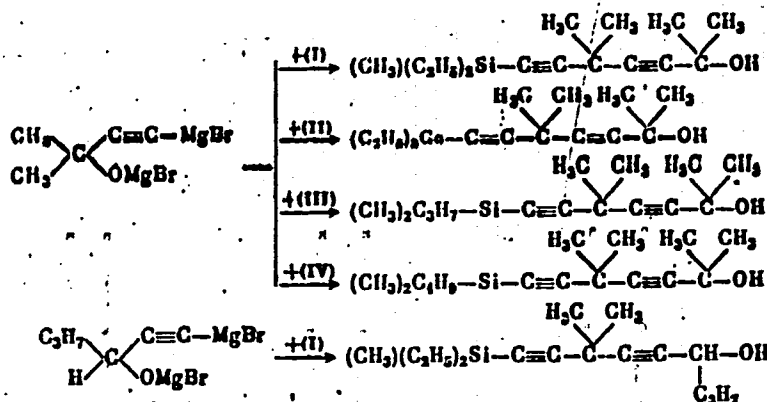
ACCESSION NR: AP4018053



Silicon and germanium organic monoatomic diacetylene alcohols with isolated triple bonds were synthesized by means of the reaction of the corresponding Iotsich reagent of acetylene alcohols with some silicon and germanium organic acetylene chlorides as follows:

Card 2/4

ACCESSION NR: AP4018053



Four representative silicon and germanium organic acetylene tertiary chlorides are described for the first time: 4-methyldiethylsilicon-2-chlor-2-methylbutine-3; 4-triethylgermanium-2-chlor-2-methylbutine-3; 4-dimethylpropylsilicon-2-chlor-2-methylbutine-3; 4-dimethylbutylsilicon-2-chlor-2-methylbutine-3. Five representative silicon and

Card 3/4

ACCESSION NR: AP4018053

germanium organic monoatomic diacetylene alcohols determined for the first time are also described: 9-methyldiacetylsilicon-7,7-dimethyl-nonadiene-5, 8-ol-4; 7-methyldiethylsilicon-2,5,5-trimethylheptadiene-3,6-ol-2; 7-triethylgermanium-2,5,5-trimethylheptadiene-3,6-ol-2; 7-dimethylpropylsilicon-2,5,5-trimethylheptadiene-3,6-ol-2; 7-dimethylbutylsilicon-2,5,5-trimethylheptadiene-3,6-ol-2. The germanium organic diacetylene acetal n.-butyltriethylgermaniumtetramethylhexadiene-acetal is described for the first time. Orig. art. has: 2 tables.

ASSOCIATION: Institut neftekhimicheskikh protsessov Akademii nauk Azerbaydzhanskoy SSR (Institute of Petrochemical Processes, Academy of Sciences Azerbaijan SSR)

SUBMITTED: 19Dec62

DATE ACQ: 19Mar64

ENCL: 00

SUB CODE: CH

NO REF SOV: 003

OTHER: 000

Card 4/4

ACCESSION NR: AP4018054

S/0079/64/034/002/0397/0398

AUTHOR: Shikhiyev, I. A.; Aslanov, I. A.

TITLE: Research in the area of synthesis and conversion of unsaturated organogermanium compounds

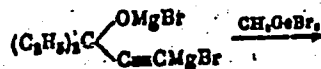
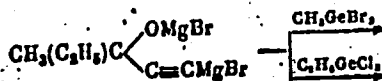
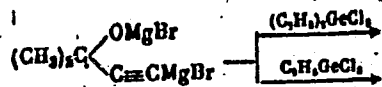
SOURCE: Zhurnal obshchey khimii, v. 34, no. 2, 1964, 397-398

TOPIC TAGS: Iotsich reagent, organogermanium compound, unsaturated compound, synthesis, conversion, ethylgermanium derivative, diethylgermanium derivative, methyl germanium derivative

ABSTRACT: The reaction of the Iotsich reagent (dimagnesiumdibromine-dimethylethynylcarbinol, dimagnesiumdibrominemethylethynylcarbinol and dimagnesiumdibrominediethylethynylcarbinol) with different alkyl- and dialkyl-germanium halides was studied. It was established that the reaction proceeds in the direction of forming corresponding di- and trihydric  $\gamma$ -germaniumacetylene alcohols as follows:

Card 3

ACCESSION NR: AP4018054



Card 2/3

ACCESSION NR: AP4018054

Bis(3-methylbutine-1-ol-3)-1-diethylgermanium is described and determined. Four representative germaniumacetylene trihydric alcohols are derived and determined for the first time: tris(6-methylbutine-1-ol-3)-1-ethylgermanium; tris(3-methylpentine-1-ol-3)-1-ethylgermanium; and tris(3-ethylpentine-1-ol-3)-1-methylgermanium. The presence of hydroxyl groups in the composition of ditertiary alcohol is shown by dehydration. The corresponding divinylacetylene organogermanium hydrocarbon bis(2-methylbutine-1-ol-3)-4-diethylgermanium is obtained. Orig. art. has: 1 table.

ASSOCIATION: Institut neftekhimicheskikh protsessov Akademii nauk Azerbaydzhanskoy SSR (Institute of Petrochemical Processes, Academy of Sciences, Azerbaidzhan SSR)

SUBMITTED: 19Dec62

DATE ACQ: 19Mar64

ENCL: 00

SUB CODE: CH

NO REF SOV: 003

OTHER: 000

CoB/3

ACCESSION NR: AP4018055

S/0079/64/034/002/0399/0400

AUTHOR: Shikhiyev, I. A.; Garayeva, Sh. V.; Aliyev, M. I.

TITLE: Hydrolytic stability of phenylphenoxy- and phenyl(biphenyloxy) silanes

SOURCE: Zhurnal obshchey khimii, v. 34, no. 2, 1964, 399-400

TOPIC TAGS: hydrolytic stability, tetrasilane, phenyltrisilane, diphenyldisilane, triphenylphenoxysilane, triphenylsilane, triphenylsilane, biphenyloxy

ABSTRACT: The hydrolytic stability of  $(C_6H_5O)_4Si$ ,  $C_6H_4Si(OC_6H_5)_3$ ,  $(C_6H_5)_2Si(OC_6H_5)_2$ ,  $(C_6H_5)_3SiOC_6H_5$ ,  $C_6H_5Si(OC_6H_4C_6H_5-n)_2$ ,  $(C_6H_5)_3SiOC_6H_4C_6H_5-n$ ,  $(C_6H_5Si(OC_6H_4C_6H_5-o)_3$ ,  $(C_6H_5)_2Si(OC_6H_4C_6H_5-o)_2$ , and  $(C_6H_5)_3SiOC_6H_4C_6H_5-o$  was studied under different conditions (in ether, water, sodium hydroxide solution, in moist air). . Regardless

Card 1/2



ACCESSION NR: AP4018055

of the character of the hydrolyzing solution, a sharp variation in hydrolytic stability is observed. This is caused by the number of phenyl groups in the silicon atom. Hydrolytic stability increased in the series  $(C_6H_5O)_4Si < C_6H_5Si(OR)_3 < (C_6H_5)_2Si(OR)_2 < (C_6H_5)_3SiOR$  ( $R=C_6H_5, C_6H_5C_6H_4-n, C_6H_5C_6H_4-o$ ). Hydrolytic stability of phenyl (aroxy)silanes depends on the character of the aroxy group and decreases in the series  $C_6H_5 > C_6H_5C_6H_5-o > C_6H_5C_6H_4-n$ . Hydrolytic stability of phenyl(aroxy)silanes in an alkali medium is considerably lower than in an acid medium. Orig. art. has: 8 figures, 5 tables.

ASSOCIATION: none

SUBMITTED: 19Dec62

DATE ACQ: 19Mar64

ENCL: 00

SUB CODE: CH

NO REF SOV: 004

OTHER: 000

Card 2/2

L 12977-65 EWT(m)/EPF(c)/EWP(j)/T Pp-4/Pz-4 RPL RM  
 ACCESSION NR: AP4037058 8/0079/64/034/005/1393/1395

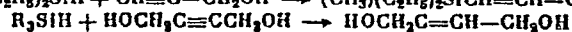
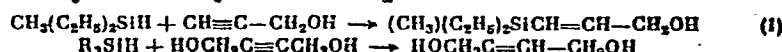
AUTHOR: Sady\*kh-zade, S. I.; Shikhiyev, I. A.; Khalilova, E. M.

TITLE: The addition of silane hydrides to acetylenic alcohols and their derivatives.

SOURCE: Zhurnal obshchey khimii, v. 34, no. 5, 1964, 1393-1395

TOPIC TAGS: addition reaction, silane hydride addition product, acetylenic alcohol addition product, propargyl addition product, butyndiol silane hydride adduct, cyanoethylation, triple bond addition reaction.

ABSTRACT: The addition of silane hydrides to propargyl alcohol, butyndiol and propargyl bromide was effected for the first time. It was established that the silane hydrides in the presence of 0.1N chloroplatinic acid add to the propargyl alcohol and butyndiol only at the triple bond:



SiR<sub>3</sub>

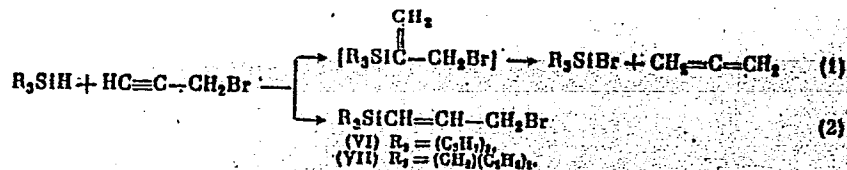
(II) R<sub>3</sub> = CH<sub>3</sub>(C<sub>2</sub>H<sub>5</sub>)<sub>2</sub>,  
 (III) R<sub>3</sub> = CH<sub>3</sub>(n-C<sub>4</sub>H<sub>9</sub>)<sub>2</sub>.

Card 1/3

L 12977-65

ACCESSION NR: AP4037058

1-methyldiethylsilylpropen-1-ol-3 (I), 2-methyldiethylbuten-2-diol-1,4 (II) and 2-methyl-n-propylsilylbuten-2-diol-1,4 (III) were prepared. I and II were cyano-ethylated to 1-methyldiethylsilyl-3-cyanopropoxypropen-1 and 2-methyldiethylsilyl-1,4-dicyanopropoxybuten-2, respectively. Reaction of silane hydrides with propargyl bromide goes in two directions:



3-bromo-1-tripropylsilylpropen-1 and 3-bromo-1-methyldiethylsilylpropen-1 were obtained by this reaction. Orig. art. has: 3 sets of equations.

ASSOCIATION: Institut neftekhimicheskikh protsessov AN Azerbaydzhanskoy SSR  
(Institute of Petrochemical Processes Academy of Sciences Azerbaydzhanskoy SSR)

Card 2/3

L 12977-65  
ACCESSION NR: AP4037058

SUBMITTED: 27Dec61

SUB CODE: IC

NO REF SOV: 004

ENCL: 00

OTHER: 003

Card 3/3

L 62774-65 EWT(m) JAJ/RM  
ACCESSION NR: AP5013768

UR/0316/65/000/001/0050/0052

AUTHOR: Shikhiyev, I. A.; Abdullayev, N. D.; Akhundova, G. Yu.

TITLE: Synthesis of gamma-silicon containing acetylene alcohols

SOURCE: Azerbaydzhanskiy khimicheskiy zhurnal, no. 1, 1965, 50-52

TOPIC TAGS: acetylene alcohol, gamma silicon acetylene alcohol, gamma silicon, silicon, acetylene alcohol synthesis, synthesis, alcohol

ABSTRACT: This is the sixth study of organosilicon acetylene alcohols that has been made by the authors since 1959. Previous studies cover primary, secondary, and tertiary  $\gamma$ -silicon acetylene alcohol and some of their chemical reactions. The present study concerns the synthesis of 4 new silicon acetylene alcohols not yet described in the technical literature. The structure of one of the alcohols is determined by obtaining the corresponding formal (dimethyloxymethane). The physico-chemical constants of the newly synthesized alcohols are given in Table 1 of the Enclosure. Orig. art. has: 1 table.

Card 1/4

L 62774-65  
ACCESSION NR: AP5013768

ASSOCIATION: INKhP AN AzSSR

SUBMITTED: 22May64

ENCL: 02

SUB CODE: 00

NO REF SOV: 005

OTHER: 000

Card 2/4

L 62774-65

ACCESSION NR: AP5013768

ENCLOSURE: 01

Table 1. Physicochemical constants of some  $\gamma$ -silicon containing acetylene alcohols

Compound No.	Designation	B.P. °C/mm	$d_4^{20}$	$n_D^{20}$
I	1-Triethylsilyl-3-propin-1-ol	100-102/4	0.8923	1.4633
II	1-Dimethylethylsilyl-3-propin-1-ol	78-80/8	0.8740	1.4462
III	1-Dimethylethylsilyl-3-methyl-3-butyne-1-ol	78-89/6	0.8570	1.4471
IV	1-Diethylpropylsilyl-3-methyl-3-pentyne-1-ol	93-100/4	0.8491	1.4514
V	n-Butyl-1-triethylsilylpropyl-1-formal	91-94/1	0.8834	1.4492

Card 3/4

L 62774-65

ACCESSION NR: AP5013768

ENCLOSURE: 02

Table 1(Cont.)

MR <sub>D</sub>		Determined, %			General formula	Calculated, %		
deter- mined	cal- cu- lation	C	H	Si		C	H	Si
52.79	53.37	63.80	11.23	16.12	C <sub>8</sub> H <sub>14</sub> OSi	63.46	10.65	16.49
43.61	44.11	58.75	10.28	19.05	C <sub>7</sub> H <sub>14</sub> OSi	59.09	9.91	19.74
53.10	53.37	63.76	11.00	16.14	C <sub>8</sub> H <sub>14</sub> OSi	63.46	10.65	16.49
71.82	71.89	69.15	12.00	12.18	C <sub>11</sub> H <sub>18</sub> OSi	68.95	11.57	12.40
77.88	78.49	65.83	10.73	10.64	C <sub>14</sub> H <sub>22</sub> O <sub>2</sub> Si	65.56	11.00	10.95

Card

282  
4/4



L 62806-65 EWT(m)/EPF(c)/EWP(j)/EWA(c) PC-4/Pr-4 JAJ/RM

ACCESSION NR: AP5018354

UR/0316/65/000/002/0059/0063

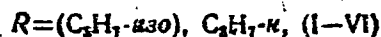
AUTHOR: Shikhiyev, I. A.; Makhmandarova, N. T.; Aslanov, I. A.

TITLE: Synthesis and conversions of unsaturated organosilicon compounds

SOURCE: Azerbaydzhanskiy khimicheskiy zhurnal, no. 2, 1965, 59-63

TOPIC TAGS: organosilicon compound, organic synthesis

ABSTRACT: This is a continuation of the work with elemental organic derivatives of the secondary acetylenic alcohols [ZhOKh, 33, 377 (1963)]. In this report a synthesis is carried out of some representatives of the  $\gamma$ -silicon-containing secondary alcohols of the ethylene series by reaction of propyl- and isopropylethynyl carbinol with trialkylsilanes in the presence of  $H_2PtCl_6$  according to the following scheme:



Card 1/2

L 62806-65

ACCESSION NR: AP5018354

The presence of a hydroxyl group in the produced alcohols of the ethylene series was proven by formation of acetals and cyanoethylation. Orig. art. has: 1 table.

ASSOCIATION: INKhP AN Azerb. SSR

SUBMITTED: 16Dec63

ENCL: 00

SUB CODE: 00

NO REF SOV: 007

OTHER: 001

*llr*  
Card 2/2

L 6485-66 EWT(m)/EPF(c)/EWP(j)/T/EWP(t)/EWP(b) IJP(c) JD/RM

ACC NR: AP5028891

SOURCE CODE: UR/0316/65/000/004/0042/0043

AUTHOR: Shikhiyev, I. A.; Aslanov, I. A.; Mekhmandarova, N. T.; Verdiyeva, S. Sh.

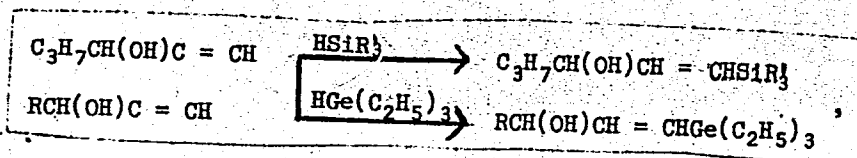
ORG: INKhP AN AzerSSR

TITLE: Synthesis and conversions of unsaturated germanium and silicon organic compounds

SOURCE: Azerbaydzhanskiy khimicheskiy zhurnal, no. 4, 1965, 42-43

TOPIC TAGS: organogermanium compound, organosilicon compound, secondary alcohol, ethylenic alcohol, silane, germane

ABSTRACT: Ten new compounds were synthesized by reacting propylethynylcarbinol and isopropylethynylcarbinol with trialkylsilanes and trialkylgermanes in the presence of chloroplatinic acid:



Card 1/2

0901 1728

L 6485-66

ACC NR: AP5028891

where R = iso-C<sub>3</sub>H<sub>7</sub>; C<sub>3</sub>H<sub>7</sub>

$R_3^1 = CH_3(C_2H_5)_2; CH_3(C_3H_7)_2; CH_3(iso-C_3H_7)_2; C_2H_5(iso-C_3H_7)_2; C_2H_5(C_3H_7)_2.$

The presence of the hydroxyl group in the synthesized compounds was determined by cyanoethylation. Properties of these compounds are tabulated in the original. Orig. art. has: 1 table. [EW]

SUB CODE: OC/ SUBM DATE: 07Dec64/ ORIG REF: 003/ OTH REF: 001/ ATD PRESS:

4139

*beh*

Card 2/2

E 31552-66 EWT(m)/EWP(j) RM

ACC NR: AP6005109

SOURCE CODE: UR/0316/65/000/005/0044/0047

AUTHOR: Aliyev, M. I.; Shikhiyev, I. A.; Balezin, S. A.; Israfilova, S. Z.; Podoyayev, N. I.

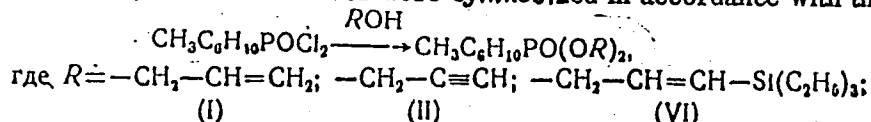
ORG: INKhP AN Azerb. SSR

TITLE: Synthesis of unsaturated esters of methylcyclohexylphosphonic acid

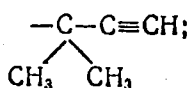
SOURCE: Azerbaydzanskiy khimicheskiy zhurnal, no. 5, 1965, 44-47

TOPIC TAGS: organic phosphorus compound, organosilicon compound, nonmetallic organic derivative, ester, chemical synthesis, IR analysis, spectroscopy, corrosion inhibitor

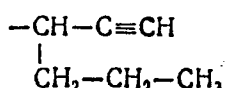
ABSTRACT: In order to study the reactivity and chemical properties of methylcyclohexylphosphonyl dichloride, some derivatives were synthesized in accordance with the reaction



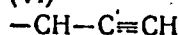
where



(III)



(IV)



(V)

Card 1/2

L 31552-66

ACC NR: AP6005109

2

Six different representatives (I-IV) of ethylenic and acetylenic derivatives of methylcyclohexylphosphonic acid were thus synthesized and described for the first time. The presence of a triple bond in dipropargyl methylcyclohexylphosphonate was established spectroscopically and also by preparing a silicon derivative. Infrared analysis showed that the addition of triethylsilane to the triple bond of dipropargyl methylcyclohexylphosphonate follows Farmer's rule of free radical addition, according to which the radical component,  $-\text{Si}(\text{C}_2\text{H}_5)_3$ , adds to the more hydrogenized carbon atom. A method of synthesis of silicon-phosphorus organic compounds was thus elaborated. Results of a preliminary study of the synthesized products showed that the dipropargyl ester (II) can be used as a steel corrosion inhibitor (in 15% HCl at 130°C). Orig. art. has: 2 figures and 1 table.

SUB CODE: 07 / SUBM DATE: 16Feb64 / ORIG REF: 002 / OTH REF: 001

Card 2/2 LC

SHIKHIYEV, I.A.; YUSUF OV, B.G.

Synthesis and transformations of oxygen-containing organic and organosilicon unsaturated compounds. Dokl. AN Azerb. SSR 21 no.1: 19-23 '65. (MIRA 18:5)

1. Institut neftekhimicheskikh protsessov AN AzerSSR.

L 3508-66 EWT(m)/EPF(c)/EWP(j)/T RM

ACCESSION NR: AP5017131

UR/0249/65/021/004/0026/0028

AUTHORS: Aliyev, M. I.; Shikhiyev, I. A.; Salimov, M. A.; Kurbanaliyeva, T. K.

TITLE: Synthesis of silicondiene derivatives of aromatic substituted hydrocarbons

SOURCE: AN AzerbSSR, Doklady, v. 21, no. 4, 1965, 26-28

TOPIC TAGS: silicon organic compound, triethylsilane, silicondiene derivative

ABSTRACT: The reaction between triethylsilane and vinylacetylphenol, anisole, guaiacol, and o-cresol was investigated. The reaction yielded silicondiene derivatives of benzene substituted hydrocarbons I to IV respectively as shown by Table 1 on the Enclosure. Physical properties and percent yield of the compounds synthesized are tabulated. Orig. art. has: 1 table.

ASSOCIATION: Institut neftekhimicheskikh protsessov (Institute for Petrochemical Processes)

SUBMITTED: 28Jan64

ENCL: 01

SUB CODE: 00, G-C

NO REF SOV: 007

OTHER: 003

Card 1/2



L 3508-66

ACCESSION NR: AP5017131

ENCLOSURE: 01

Table 1.

MN III	Formula
I	$\begin{array}{c} \text{COH} \\   \\ \text{HC} \quad \text{CH} \\   \quad   \\ \text{HC} \quad \text{CH} \\   \quad   \\ \text{C} \quad \text{C} \\   \quad   \\ \text{CH} \quad \text{CH} \\   \quad   \\ \text{CH}_3 \quad \text{CH}=\text{CH}_2 \end{array}$
II	$\begin{array}{c} \text{C-OCH}_3 \\   \\ \text{HC} \quad \text{CH} \\   \quad   \\ \text{HC} \quad \text{CH} \\   \quad   \\ \text{C} \quad \text{C} \\   \quad   \\ \text{CH} \quad \text{CH} \\   \quad   \\ \text{CH}_3 \quad \text{CH}=\text{CH}_2 \end{array}$
III	$\begin{array}{c} \text{C-OH} \\   \\ \text{HC} \quad \text{CH} \\   \quad   \\ \text{HC} \quad \text{CH} \\   \quad   \\ \text{C} \quad \text{C} \\   \quad   \\ \text{CH} \quad \text{CH} \\   \quad   \\ \text{CH}_3 \quad \text{CH}=\text{CH}_2 \end{array}$
IV	$\begin{array}{c} \text{GOH} \\   \\ \text{HC} \quad \text{CH} \\   \quad   \\ \text{HC} \quad \text{CH} \\   \quad   \\ \text{C} \quad \text{C} \\   \quad   \\ \text{CH} \quad \text{CH} \\   \quad   \\ \text{CH}_3 \quad \text{CH}=\text{CH}_2 \end{array}$

Card 2/2

BP

L 54618-65

ACCESSION NR: AP5008837

ENT(m)/EPF(c)/ENP(j)/T

Pc-4/PP-4

S/0079/65/035/003/0459/0461

AUTHOR: Shikhiyev, I. A.; Aslanov, I. A.; Mekhmandarova, N. T.

TITLE: Studies in the field of synthesis and transformations of unsaturated germanium organic compounds. 1. Synthesis and conversions of some monohydric germanium organic diacetylene alcohols with isolated triple bonds

SOURCE: Zhurnal obshchey khimii, v. 35, no. 3, 1965, 459-461

TOPIC TAGS: germanium organic compound, organic synthesis

ABSTRACT: The article describes the synthesis of some representatives of germanium organic monohydric diacetylene alcohols with isolated triple bonds using an appropriate Iotsich reagent and germanium organic acetylenic chloride of 5-triethylgermanium-3-methyl-3-chloropent-4-yne according to the reaction  $\text{BrMgOC}(\text{R}_1)\text{C}\equiv\text{CMgBr} + (\text{C}_2\text{H}_5)_3\text{GeC}\equiv\text{C}(\text{CH}_2)(\text{C}_2\text{H}_5)\text{Cl} \rightarrow (\text{C}_2\text{H}_5)_3\text{GeC}\equiv\text{C}-\text{C}(\text{CH}_2)(\text{C}_2\text{H}_5)\text{C}\equiv\text{C}-\text{C}(\text{R}_1)\text{OH}$ . The presence of a hydroxyl group in the obtained compounds was proved through acetylation by reacting diacetylene alcohol with vinylbutyl ether. The article gives physical constants for the synthesized compounds. Orig. art. has: 1 table.

Card 1/2

L 54618-65

ACCESSION NR: AP5008837

ASSOCIATION: Institut neftekhimicheskikh protsessov Akademii nauk Azerbaydzhanskoy SSR (Institute of Petrochemical Processes, Academy of Sciences Azerbaydzhan SSR)

SUBMITTED: 24Dec63

ENCL: 00

SUB CODE: 0C

NO REF SOV: 003

OTHER: 000

Card 2/2

SHIKHIYEV, I.A.; VATANKHA, A.A.; GUSEYNZADE, B.M.

Synthesis and transformations of oxygen-containing organic and organosilicon compounds. Part 24: Synthesis and transformations of acetylenic formals. Zhur. ob. khim. 35 no.5:812-814 My '65.  
(MIRA 18:6)

1. Institut neftekhimicheskikh protsessov Akademii nauk Azerbaydzhanskoy SSR.

L 00887-66 EWT(m)/EPF(c)/EWP(j) RM

ACCESSION NR: AP5020083

UR/0079/65/035/008/1348/1350  
547.438.6

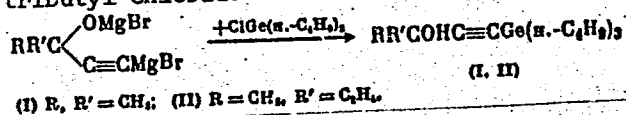
AUTHOR: Shikhiyev, I. A.; Abdullayev, N. D.

TITLE: Investigations on synthesis and reactions of unsaturated organogermanium compounds. XXV. Synthesis and certain reactions of monohydric  $\gamma$ -germaniumethyne alcohol

SOURCE: Zhurnal obshchey khimii, v. 35, no. 8, 1965, 1348-1350

TOPIC TAGS: organogermanium compound, organomagnesium compound, alcohol, acetylene

ABSTRACT: Reaction of magnesiumalcoholate of dimethyl- and methylethylethyne carbinol with germanium tributyl chloride was studied according to the following scheme



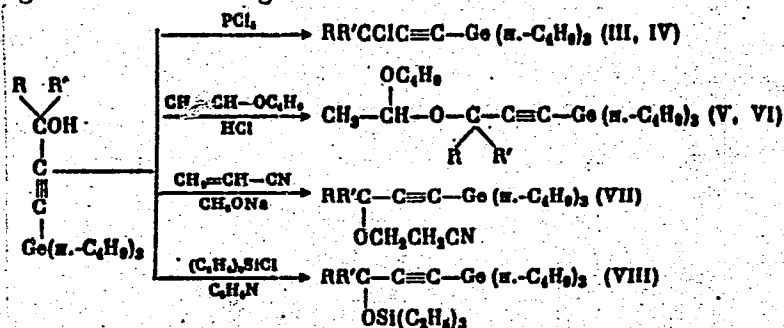
Presence of a hydroxy-group in the reaction product (I, II) was proved by preparing chlorine derivatives (III, IV), by using acetalization reaction (compounds V and VI)

Card 1/3

L 00887-66

ACCESSION NR: AP5020083

by using cyanoethylation reaction (compound VII), and by preparing a siloxy-derivative (VIII) according to the following scheme



The above compounds were synthesized in the following yields (in wt. %): I and II--26.6, III and IV--80, V and VI--35, VII--52, and VIII--28. Boiling points (in °C under vacuum), specific gravities, refractive indices, and chemical formulas (from ultimate analysis) were determined for compounds I - VIII. An excellent agreement

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L 00887-66

ACCESSION NR: AP5020083

was found between the elemental contents determined analytically and those calculated from the chemical formulas. Orig. art. has: 1 table. 2

ASSOCIATION: Institut neftekhimicheskikh processov Akademii nauk Azerbaydzanskoy SSR (Institute of Petrochemical Processes, Academy of Sciences, Azerbaydzhan SSR) 53

SUBMITTED: 27May64 .

ENCL: 00

SUB CODE: GC

NO REF SOV: 002

OTHER: 000

Card 3/3 DP

SHIKHIYEV, T.A.; ALIYEV, M.I.; YUSUFOV, B.G.

Studies in the synthesis and transformations of oxygen-containing organic and organosilicon compounds. Part 22: Synthesis of organic and organosilicon trichloroacetals and half ethers of chloro hydrate of the acetylene series. Zhur. ob. khim. 35 no.9:1654-1657 S '65.  
(MIRA 18:10)

1. Institut neftekhimicheskikh protsessov AN AzerSSR.



SHIKHIYEV, I.A.; ALIYEV, M.I.; ISRAFILOVA, S.Z.

Synthesis of methyl and dimethylcyclopentylphosphinic acid  
dichloroanhydrides. Dokl. AN Azerb. SSR 21 no.7:7-9 '65.

(MIRA 18:12)

1. Institut neftekhimicheskikh protsessov AN AzSSR. Submitted  
April 3, 1964.

L 34103-66 EWT(m)/EWP(j) RM  
ACC NR: AP6008712

SOURCE CODE: UR/0079/65/035/011/2026/2028

AUTHOR: Shikhiyev, I. A.; Abdullayev, N. D.; Aliyev, M. I.; Akhundova, G. Yu. 28

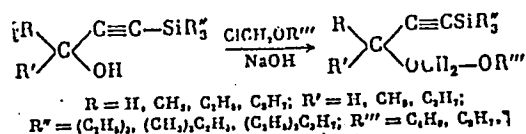
ORG: Institute of Petrochemical Processes, AN Azerbaydzhan SSR (Institut neftekhimicheskikh protsessov AN Azerbaydzhanskoy SSR)

TITLE: Studies in the field of synthesis and conversions of unsaturated organosilicon compounds. Part 26: Synthesis of organosilicon formals of the acetylene series

SOURCE: Zhurnal obshchey khimii, v. 35, no. 11, 1965, 2026-2028

TOPIC TAGS: organosilicon compound, acetylene compound

ABSTRACT: The reaction of certain acetylenic organosilicon alcohols with  $\alpha$ -chloromethyl alkyl esters in the presence of sodium hydroxide was studied. It was found that the reaction produces the corresponding acetylenic organosilicon formals as follows:



Card 1/2

UDC: 547.314:546.287

L 34103-66

ACC NR: AP6008712

n-Butyl-1-triethylsilylpropyne-1-formal and ten representatives of silicon-containing acetylenic formals were thus synthesized, and their characteristics were determined. Orig. art. has: 1 table.

SUB CODE: 07 / SUBM DATE: 17Oct64 / ORIG REF: 003

Card 2/2 *MT*

L 24515-66 EWT(m)/EWP(j)/EWP(t) IJF(c) JD/WB/RM

ACC NR: AP6009526

(N)

SOURCE CODE: UR/0413/66/000/005/0049/0049

AUTHOR: Podobayev, N. I.; Balezin, S. A.; Shikhiyev, I. A.; Aliyev, M. I.;  
Israfilova, S. Z.; Kurbanov, F. K.

4<sup>2</sup>  
B

ORG: none

TITLE: Corrosion inhibitor for steel in hydrochloric acid. Class 22, No. 179406.  
[Announced by the Moscow State Pedagogical Institute im. V. S. Lenin (Moskovskiy  
gosudarstvennyy pedagogicheskiy institut)]

15, 18

SOURCE: Izobreteniya, promyshlennyye obraztsy, tovarnyye znaki, no. 5, 1966, 49.

TOPIC TAGS: steel corrosion, corrosion inhibitor, acid corrosion

ABSTRACT: An Author Certificate has been issued for a corrosion inhibitor for steel  
in hydrochloric acid. Consisting basically of dipropargyl methylcyclohexylphosphi-  
nate, it contains several other additives, preferably in amounts of inhibitor BA-6,  
~ 0.5%; 1-hexyn-3-ol, 0.25 -- 0.5%; potassium iodide, ~ 0.02%. [LD]

18

SUB CODE: 13/ SUBM DATE: 07Jan65

Card 1/1 BLG

UDC: 620.197.3

2

L 45895-66 EWT(m)/EWP(j) RM

ACC NR: AP6026429 (A)

SOURCE CODE: UR/0079/66/036/005/0912/0914

AUTHOR: Shikhiyev, I. A.; Abdullayev, N. D.

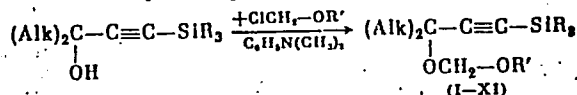
ORG: Institute of Petrochemical Processes, Academy of Sciences, Azerbaydzhan SSR  
(Institut neftekhimicheskikh protsessov Akademii nauk Azerbaydzhanskoy SSR)

TITLE: Synthesis and conversions of organosilicon compounds. Report No. 30. Synthesis and certain conversions of silicoacetylenic formals

SOURCE: Zhurnal obshechey khimii, v. 36, no. 5, 1966, 912-914

TOPIC TAGS: organosilicon compound, alcohol, ether, acetal

ABSTRACT: The reactivity of primary, secondary, and tertiary silicoacetylenic alcohols toward various  $\alpha$ -chloromethyl alkyl ethers was studied. The reactions were:



- |  |  |   |
|--|--|---|
| (I) R' = C <sub>2</sub> H <sub>5</sub> .       | R <sub>2</sub> = (CH <sub>3</sub> ) <sub>2</sub> C <sub>2</sub> H <sub>5</sub> . | Alk = H;  |
| (II) R' = C <sub>2</sub> H <sub>5</sub> -n.    | R <sub>2</sub> = (CH <sub>3</sub> ) <sub>2</sub> C <sub>2</sub> H <sub>5</sub> . | Alk = H;  |
| (III) R' = CH <sub>3</sub> .                   | R <sub>2</sub> = (C <sub>2</sub> H <sub>5</sub> ) <sub>2</sub> .                 | Alk = H;  |
| (IV) R' = C <sub>2</sub> H <sub>5</sub> .      | R <sub>2</sub> = (C <sub>2</sub> H <sub>5</sub> ) <sub>2</sub> .                 | Alk = H;  |
| (V) R' = C <sub>2</sub> H <sub>5</sub> -n.     | R <sub>2</sub> = (C <sub>2</sub> H <sub>5</sub> ) <sub>2</sub> .                 | Alk = H;  |
| (VI) R' = CH <sub>3</sub> .                    | R <sub>2</sub> = (CH <sub>3</sub> ) <sub>2</sub> C <sub>2</sub> H <sub>5</sub> . | Alk = H, C <sub>2</sub> H <sub>5</sub> -n               |
| (VII) R' = C <sub>2</sub> H <sub>5</sub> -iso. | R <sub>2</sub> = (CH <sub>3</sub> ) <sub>2</sub> C <sub>2</sub> H <sub>5</sub> . | Alk = CH <sub>3</sub> , C <sub>2</sub> H <sub>5</sub> . |
| (VIII) R' = C <sub>2</sub> H <sub>5</sub> -n.  | R <sub>2</sub> = (CH <sub>3</sub> ) <sub>2</sub> C <sub>2</sub> H <sub>5</sub> . | Alk = CH <sub>3</sub> , C <sub>2</sub> H <sub>5</sub> . |
| (IX) R' = CH <sub>3</sub> .                    | R <sub>2</sub> = (C <sub>2</sub> H <sub>5</sub> ) <sub>2</sub> .                 | Alk = CH <sub>3</sub> , C <sub>2</sub> H <sub>5</sub> . |
| (X) R' = C <sub>2</sub> H <sub>5</sub> .       | R <sub>2</sub> = (C <sub>2</sub> H <sub>5</sub> ) <sub>2</sub> .                 | Alk = CH <sub>3</sub> , C <sub>2</sub> H <sub>5</sub> . |
| (XI) R' = C <sub>2</sub> H <sub>5</sub> -n.    | R <sub>2</sub> = (CH <sub>3</sub> ) <sub>2</sub> C <sub>2</sub> H <sub>5</sub> . | Alk = CH <sub>3</sub> .                                 |

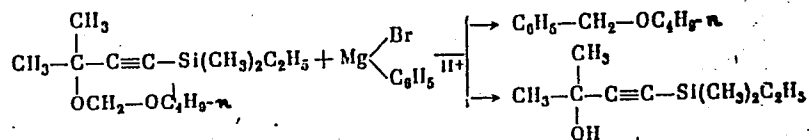
Card 1/2

UDC: 547.367+547.312

L 45895-66

ACC NR: AP6026429

The structure of the silcoacetylenic formals obtained was determined spectroscopically and by an exchange reaction of one representative with organomagnesium compounds:



Eleven representatives were thus obtained for the first time and were characterized. It was found that  $\alpha$ -chloromethyl alkyl ethers react more vigorously with tertiary organosilicon alcohols than with primary or secondary alcohols. Orig. art. has: 1 table.

SUB CODE: 07/ SUBM DATE: 03Apr65/ ORIG REF: 001

Card 2/2 LC

L 23835-66 EWT(m)/EWP(j)/T RM

ACC NR: AP6007121

SOURCE CODE: UR/0079/66/036/002/0352/0354

AUTHOR: Shikhiyev, I. A.; Rzayeva, S. A.; Guseynzade, B. M.

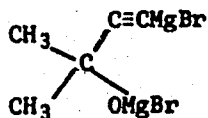
ORG: Institute of Petrochemical Processes, Academy of Sciences, Azerbaydzhans SSR <sup>22</sup>  
(Institut neftekhimicheskikh protsessov Akademii nauk Azerbaydzhanskoy SSR) <sup>B</sup>

TITLE: Studies in the synthesis and conversion of unsaturated organosilicon compounds.  
Part 27: Branching synthesis of organosilicon alcohols of the biacetylene series

SOURCE: Zhurnal obshchey khimii, v. 36, no. 2, 1966, 352-354 <sup>1</sup>

TOPIC TAGS: organosilicon compound, alcohol, chloride, organomagnesium compound

ABSTRACT: The reactions of the magnesium bromide complex <sup>1</sup>

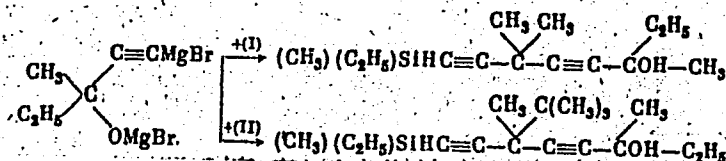
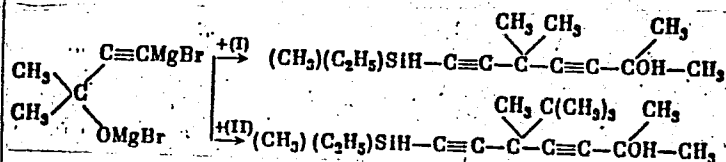


with various tertiary acetylenic organosilicon chlorides were studied. The reactions were as follows:

Card 1/2

L 25835-66

ACC NR: AP6007121



It was found that the complex reacts with the tertiary chlorides more vigorously than with methylethynylcarbinol. Two representatives of tertiary acetylenic organosilicon chlorides, 2-chloro-4-methylethylsilyl-2-methyl-3-butyne and 3-chloro-5-methylethylsilyl-2,2,3-trimethyl-4-pentyne, were described for the first time. The following four representatives of branched monatomic diacetylenic organosilicon alcohols were obtained and characterized for the first time: 7-methylethylsilyl-2,5,5-trimethyl-3,6-heptadiyn-2-ol; 8-methylethylsilyl-3,6,6-trimethyl-4,7-octadiyn-3-ol.; 7-methylethylsilyl-2,5-dimethyl-5-tert-butyl-3,6-heptadiyn-2-ol., and 8-methylethylsilyl-3,6-dimethyl-6-tert-butyl-4,7-octadiyn-3-ol. Orig. art. has: 1 table, 4 formulas.

SUB CODE: 07/

SUBM DATE: 23Jan65/

ORIG REF: 003/

OTH REF: 000

Card 2/2 *fv*



L 23842-66 EWT(m)/EWP(j)/T IJP(c) WW/JW/RM

ACC NR: AP6007122

SOURCE CODE: UR/0079/66/036/002/0355/0357

AUTHOR: Shikhiyev, I. A.; Aslanov, I. A.; Verdiyeva, S. Sh.

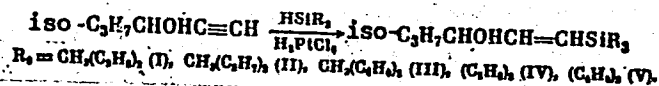
ORG: Institute of Petrochemical Processes, Academy of Sciences, Azerbaydzhans SSR  
(Institut neftekhimicheskikh protsessov Akademii nauk Azerbaydzhanskoy SSR)

TITLE: Studies in the synthesis and conversion of unsaturated organosilicon compounds. Part 28: Synthesis and conversion in certain monatomic organosilicon alcohols of the ethylene series

SOURCE: Zhurnal obshchey khimii, v. 36, no. 2, 1966, 355-357

TOPIC TAGS: organosilicon compound, alcohol, *chemical reaction*

ABSTRACT: In order to further develop the studies of organometallic derivatives of unsaturated alcohols, the reaction of isopropylethynylcarbinol with various trialkylsilanes,



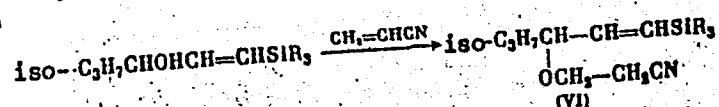
was investigated. Five representatives of secondary organosilicon alcohols of the ethylene series were obtained and described for the first time: 1-methyldiethylsilyl-

Card 1/2

L 23842-66

ACC NR: AP6007122

2  
-4-methyl-1-penten-3-ol; 1-methyldipropylsilyl-4-methyl-1-penten-3-ol; 1-methyldi-  
butyl-silyl-4-methyl-1-penten-3-ol; 1-triethylsilyl-4-methyl-1-penten-3-ol, and 1-tri-  
butyl-silyl-4-methyl-1-penten-3-ol. The presence of hydroxyl groups in the composi-  
tion of secondary ethylenic alcohols was demonstrated by cyanoethylation according to  
the reaction



The corresponding cyanoethoxy derivatives of secondary alcohols were obtained and de-  
scribed for the first time. Orig. art. has: 2 formulas, 1 table.

SUB CODE: 07/

SUBM DATE: 23Jan65/

ORIG REF: 003/

OTH REF: 000

Card 2/2

L 04550-67 EWT(m)/EWP(j) RM  
ACC NR: AP6025991

SOURCE CODE: UR/0079/66/036/007/1293/1295

AUTHOR: Shikhiyev, I. A.; Vatankha, A. A.; Guseyn-zade, B. M.

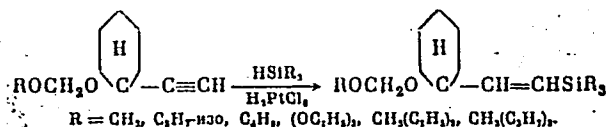
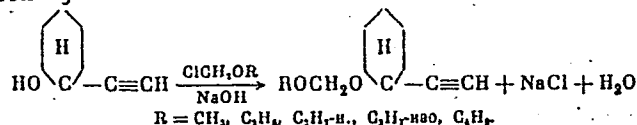
ORG: Institute of Petrochemical Processes, Academy of Sciences Azerbaydzhan SSR  
(Institut neftekhimicheskikh protsessov Akademii nauk Azerbaydzhanskoy SSR)

TITLE: Synthesis of acetylenic formals and their reactions with hydrosilanes

SOURCE: Zhurnal obshchey khimii, v. 36, no. 7, 1966, 1293-1295

TOPIC TAGS: organosilicon compound, organic synthesis

ABSTRACT: The purpose of this investigation was to compare the reactivity of certain acetylenic hydrosilane derivatives. Synthesis of acetylenic cyclohexylformals and their reactions with hydrosilanes were conducted by the following scheme:



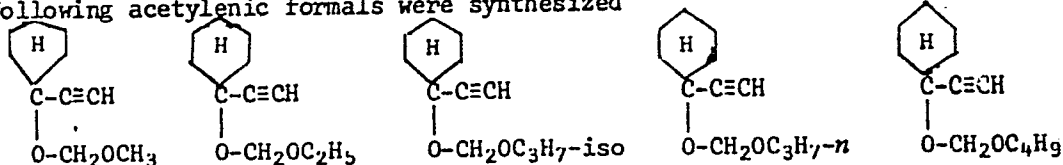
Card 1/3

UDC: 547.362+547.245

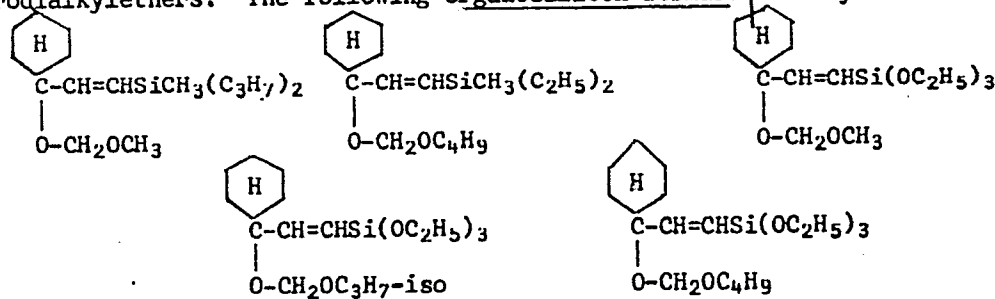
L 04550-67

ACC NR: AP6025991

The following acetylenic formals were synthesized



using acetylenecyclohexanol in absolute ether, sodium hydroxide and corresponding α-chlorodialkylethers. The following organosilicon formals were synthesized



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